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**Part IV**

**Environmental  
Protection Agency**

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40 CFR Parts 9, 144, 145, and 146  
Underground Injection Control  
Regulations for Class V Injection Wells,  
Revision; Final Rule

**ENVIRONMENTAL PROTECTION AGENCY****40 CFR Parts 9, 144, 145 and 146**

[FRL-6482-2]

RIN 2040-AB83

**Revisions to the Underground Injection Control Regulations for Class V Injection Wells****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Final rule.

**SUMMARY:** Today the Environmental Protection Agency (EPA) is promulgating revisions to the Class V Underground Injection Control (UIC) regulations. This rule adds new requirements for two categories of endangering Class V wells to ensure protection of underground sources of drinking water. In particular, it: bans existing motor vehicle waste disposal wells in ground water protection areas

and other sensitive ground water areas with a provision that allows well owners and operators to seek a waiver from the ban and obtain a permit; and bans new motor vehicle waste disposal wells and new and existing large-capacity cesspools nationwide. The preamble also discusses EPA's decision to postpone finalization of new requirements for the industrial well category as defined in the proposed rule. EPA believes it would be worthwhile to further study this well category and will finalize the rule for industrial wells at a later date.

**DATES:** This rule will be effective April 5, 2000.

**ADDRESSES:** The rule and supporting documents, including public comments and EPA responses, are available for review in the UIC Class V W-98-05 Water Docket at the U.S. Environmental Protection Agency; 401 M Street, SW., EB57, Washington, D.C. 20460. For information on how to access Docket materials, please call (202) 260-3027

between 9 a.m. and 3:30 p.m. Eastern Time, Monday through Friday.

**FOR FURTHER INFORMATION CONTACT:** For general information, contact the Safe Drinking Water Hotline, phone 800-426-4791. The Safe Drinking Water Hotline is open Monday through Friday, excluding federal holidays, from 9 a.m. to 5:30 p.m. Eastern Time. For technical inquiries, contact Robyn Delehanty, Underground Injection Control Program, Office of Ground Water and Drinking Water (mailcode 4606), EPA, 401 M Street, SW., Washington, DC, 20460. Phone: 202-260-1993. E-mail: delehanty.robyn@epamail.epa.gov.

**SUPPLEMENTARY INFORMATION:** *Regulated Entities:* Although certain clarifications to the UIC regulations apply to owners or operators of any type of Class V well, the entities regulated by additional requirements are owners or operators of Class V motor vehicle waste disposal wells and large-capacity cesspools. Potentially regulated categories and entities include:

Category	Examples of regulated entities (if they have a Class V well)
Industry and Commerce .....	<i>Motor Vehicle Facilities:</i> gasoline service stations, new and used car dealers, any facility that does any vehicle repair work (e.g., body shops, transmission repair shops, and muffler repair shops). <i>Large-Capacity Cesspools:</i> residential or commercial facilities such as campgrounds, multi-unit residences, churches, schools.
State and Local Government .....	<i>Motor Vehicle Facilities:</i> road facilities, fire stations. <i>Large-Capacity Cesspools:</i> campgrounds, rest stops.
Federal Government .....	Any Federal Agency that owns or operates one of the above entities.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities, of which EPA is currently aware, that are potentially regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your injection well is regulated by this action, you should carefully examine the applicability criteria in §§ 144.81 and 144.85 of the rule. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

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## I. Format and Scope of Rule

Today's notice consolidates Class V UIC regulations in a new Subpart G to 40 CFR Part 144. This subpart is written in a simple-to-understand, plain-English format. Before reading the rest of this preamble, Class V well owners/operators should review the final regulation that presents the enforceable legal requirements they need to know about. This preamble does not repeat many of the requirements contained in the final rule, but rather provides background and additional rationale not included in the regulation.

## II. Background

### A. Statutory and Regulatory Framework

Class V wells are regulated under the authority of Part C of the Safe Drinking Water Act (SDWA or the Act) (42 U.S.C. 300h *et seq.*). The SDWA is designed to protect the quality of drinking water in the United States, and Part C specifically mandates the regulation of underground injection of fluids through wells. The Agency has promulgated a series of underground injection control (UIC) regulations under this authority.

Section 1421 of the Act requires EPA to propose and promulgate regulations specifying minimum requirements for State programs to prevent underground injection that endangers drinking water sources. EPA promulgated administrative and permitting regulations, now codified in 40 CFR parts 144 and 146, on May 19, 1980 (45 FR 33290), and technical requirements in 40 CFR part 146 on June 24, 1980 (45 FR 42472). The regulations were subsequently amended on August 27, 1981 (46 FR 43156), February 3, 1982 (47 FR 4992), January 21, 1983 (48 FR 2938), April 1, 1983 (48 FR 14146), July 26, 1988 (53 FR 28118), December 3, 1993 (58 FR 63890), June 10, 1994 (59 FR 29958), December 14, 1994 (59 FR 64339), and June 29, 1995 (60 FR 33926).

Section 1422 of the Act provides that States may apply to EPA for primary enforcement responsibility to administer the UIC program; those States receiving such authority are referred to as "Primacy States." Where States do not seek this responsibility or

fail to demonstrate that they meet EPA's minimum requirements, EPA is required by regulation to prescribe a UIC program for such States. These direct implementation (DI) programs regulations were issued in two phases, on May 11, 1984 (49 FR 20138) and November 15, 1984 (49 FR 45308). For the remainder of this preamble, references to the UIC Program "Director" mean either the Director of the EPA program (where the program is implemented directly by EPA) or the Director of the Primacy State program (where the State is responsible for implementing the program). Also, currently all Class V UIC Programs in Indian Country are directly implemented by EPA. Therefore, for the remainder of this preamble, references to DI Programs include Class V programs in Indian Country.

### B. History of This Rulemaking

#### 1. 1994 Consent Decree With the Sierra Club

On August 31, 1994, EPA entered into a consent decree with the Sierra Club that required that no later than August 15, 1995, the EPA Administrator sign a notice to be published in the **Federal Register** proposing regulatory action that fully discharges the Administrator's rulemaking obligation under section 1421 of the SDWA, 42 U.S.C. 300h, with respect to Class V injection wells.

#### 2. 1995 Proposed Rule

On August 15, 1995, the Administrator signed a notice of proposed rulemaking that proposed a regulatory determination and minor revisions to the UIC regulations for Class V injection wells (60 FR 44652, August 28, 1995). In this notice, EPA proposed not to adopt additional federal regulations for any types of Class V wells. Instead, the Agency proposed to address the risks posed by certain wells using existing authorities and a Class V management strategy designed to (1) speed up the closure of potentially endangering wells and (2) promote the use of best management practices to ensure that other Class V wells of concern do not endanger underground sources of drinking water (USDWs). Several factors led EPA to propose this approach, including: (1) The wide diversity in the types of fluids being injected, ranging from high risk to not likely to endanger; (2) the large number of facilities to be regulated; and (3) the nature of the regulated community, which consists of a large proportion of small businesses.

EPA received many comments that supported the Agency's proposal to not

impose more regulations for Class V wells. However, EPA also received a number of comments that raised concerns about the proposal. In particular, several commentors questioned whether a UIC program without additional requirements for relatively high-risk well types would prevent endangerment to drinking water sources as required by the SDWA. Others questioned whether the proposal was really the best EPA could do given the known threat to USDWs that some wells present.

#### 3. 1997 Modified Consent Decree

Based on comments received on the 1995 proposal, EPA decided to reconsider that proposed approach. Because this reconsideration would extend the time necessary to complete the rulemaking for Class V wells, EPA and the Sierra Club entered into a modified consent decree on January 28, 1997 (D.D.C. No. 93-2644) that extended the dates for rulemaking that had been in the 1994 decree. The modified decree requires three actions.

First, by no later than June 18, 1998, the EPA Administrator was required to sign a notice to be published in the **Federal Register** proposing regulatory action that fully discharges the Administrator's rulemaking obligation under section 1421 of the SDWA with respect to those types of Class V injection wells presently determined to be high risk for which EPA does not need additional information. A thirty-day extension was granted; the Administrator signed the notice on July 17, 1998. The Administrator is required to sign a final determination for these endangering Class V wells by no later than October 29, 1999, although the decree provides the Administrator with discretion to exercise another 30-day extension.

Second, by no later than September 30, 1999, EPA must complete a study of all Class V wells not included in the first rulemaking on endangering Class V injection wells. EPA has completed this study. Based on this study, EPA may find that some of these other types of Class V wells also pose an endangerment to drinking water.

Third, by no later than April 30, 2001, the EPA Administrator must sign a notice to be published in the **Federal Register** proposing to discharge the Administrator's rulemaking obligations under section 1421 of the SDWA with respect to all Class V injection wells not included in the first rulemaking for Class V injection wells. The Administrator must sign a final determination for these remaining Class V wells by no later than May 31, 2002.

#### 4. 1998 Proposed Rule

On July 29, 1998 (63 FR 40586), in response to the first action required under the modified consent decree, EPA proposed revisions to the Class V UIC regulations that would add new requirements for three categories of Class V wells that were believed to endanger drinking water. According to this proposal, Class V motor vehicle waste disposal wells in ground water protection areas (as defined in Section IV.A.1 of the preamble) would either be banned or would have to get a permit that requires fluids released in those wells to meet the drinking water maximum contaminant levels (MCLs) and other health-based standards at the point of injection. Class V industrial waste disposal wells in ground water protection areas also would be required to meet the MCLs and other health-based standards at the point of injection, and large-capacity cesspools in such areas would be banned.

EPA discussed the 1998 proposal with several stakeholders and small entity representatives. During January and February of 1998, EPA convened three stakeholder meetings to inform potentially affected entities of the requirements under consideration and to solicit feedback. In addition, as required by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), EPA conducted outreach to representatives of small entities affected by the rule. In consultation with the Small Business Administration, EPA identified 17 representatives of small entities that were most likely to be affected by the proposal.

A Small Business Advocacy Review Panel met for 60 days in 1998 to identify small entity concerns with the proposed rulemaking. The 1998 proposal incorporated all recommendations on which the Panel reached consensus (see 63 FR 40590, July 29, 1998).

### III. Actions Taken After Close of the Public Comment Period

#### A. Public Comment

The 1998 proposed rule was initially open for public comment for 60 days. In response to a request to extend the comment period, EPA published a notice in the **Federal Register** (63 FR 51882) which reopened the comment period for an additional 60 days.

Ninety-seven commentors addressed the proposal. EPA has developed a response to comment document addressing all public comments received on motor vehicle waste disposal wells and large-capacity cesspools, which are the well types

addressed in this rulemaking. This document is available at the Water Docket. In addition, some comments are discussed in today's preamble. Public comment received regarding regulation of industrial wells will be considered and addressed when the final determination for those wells is published.

#### B. National Drinking Water Advisory Council

The National Drinking Water Advisory Council (NDWAC) was established by the SDWA Section 1446 to provide practical and independent advice, consultation, and recommendations to the Agency on the activities, functions and policies related to the SDWA. At its April 1997 meeting, NDWAC decided to form a Federal Advisory Committee Act (FACA) working group to address the Class V Underground Injection Control and Source Water Protection Program integration issues.

The EPA UIC and Source Water working group represents a broad range of public interests including: State, federal and local government representatives; public interest groups, including environmental organizations; universities; industry; and utility operators. The group met twice in 1999 to discuss the proposed Class V regulation, as well as issues addressed in public comment.

The full NDWAC council considered the working group's conclusions during their May 1999 meeting. The full council then made formal recommendations to the Administrator.

#### C. Notice of Data Availability

EPA published a notice of data availability (NODA) and further request for comment related to the 1998 proposed rule on May 21, 1999 (64 FR 27741). A total of 14 public comment letters were received in response to this request.

The NODA was published in response to additional information received during and after the close of the comment period. It outlined additional data and issues EPA was considering in developing the final rule, including the following information that is discussed in separate sections below: contamination incident information and injectate quality data from the Class V study; a draft report on contaminant occurrence in public water systems; and injectate quality and contamination incident data from EPA Regions II and VIII. Two other categories of information presented in the NODA, Class V well closure cost data from Penske Truck Leasing Company and

Source Water Assessment Plans submitted to EPA, are discussed in section V.A of today's preamble relating to the economic impact analysis.

The following sections only address the NODA as it pertains to motor vehicle waste disposal wells and large-capacity cesspools targeted in today's rule. As discussed in more detail in section IV.B of this preamble, several public commentors on the 1998 proposal questioned the basis for regulating all industrial wells in the same manner, given the diversity of wells that exist within that category as it was proposed and the Agency has decided not to go final with the 1998 proposal for industrial wells at this time.

#### 1. Class V Study

EPA has completed a study of Class V injection wells to meet the requirements of a modified consent decree in *Sierra Club v. Browner* (D.D.C. Mo. 93-2644). This consent decree required the Agency to study Class V wells not included in today's rulemaking. The information was collected from both State and EPA Regional offices using survey questionnaires and selected site visits, and from other sources, such as trade associations, research institutions and universities. Information from the study will be used to determine if additional Class V regulations are needed to protect USDWs from Class V injection wells not regulated by today's rulemaking. The focus of the study consisted of an information collection effort for 23 subclasses of Class V wells.

Through the study, States and EPA Regional offices were also asked to supply information on the three well types addressed in the proposed rule: motor vehicle waste disposal wells; industrial waste disposal wells and large-capacity cesspools. Before the study was completed and the final methods and results were fully documented, information received on the three well types targeted by the proposed Class V rule were compiled in a single notebook and made available through the NODA. The data was presented in three sections. The first section provided the latest State inventory information for each of the three well types as reported in survey responses. The second provided information on contamination incidents identified by the States. The third contained injectate quality data collected from motor vehicle and industrial waste disposal wells.

In the NODA, EPA stated its plan to use this new information to help assess the threat posed by the different well

types and to better project the number of affected entities. Below, EPA describes how the recently obtained injectate quality and contamination case information presented in the NODA supports the Agency's regulatory determination in today's final rule-making. The new inventory data presented in the NODA is discussed in Section V of this preamble.

As part of the Class V Study EPA received limited injectate sampling data for motor vehicle waste disposal wells. In "Analyses from Sampling at Class V Industrial and Motor Vehicle Waste Disposal Wells," A. Melcer and N. Wiser, USEPA Region 5, examined the analytical results of liquid and sludge injectate taken from 26 motor vehicle waste disposal wells in Indiana, Michigan, and Minnesota.

Approximately 50 percent of the liquid samples collected exceeded MCLs and approximately 19 percent of the samples exceeded toxicity characteristic (TC) hazardous waste limits. Approximately 80 percent of the sludge leachate samples analyzed exceeded MCLs and 30 percent qualified as hazardous waste. Laboratory results submitted by another motor vehicle facility indicated that some organic constituents in the injectate were above MCLs. As a result, the permit for the Class V UIC well was denied. A database containing thirty cases of soil and/or ground water contamination caused by the operation of such wells was also submitted as part of the Study. Most of the contamination cases are for service stations in New York but the database does not provide specific details.

Six public commentors said this information did not support the Agency's proposed high-risk conclusion and a ban for motor vehicle waste disposal wells. These commentors believed the information shows that motor vehicle wells can be safely operated under certain circumstances, that the contamination cases are few in number and possibly not representative of today's operating practices, and that the information is too vague and anecdotal to support informed decision making.

## 2. Region II and VIII Data

The Region II and VIII data provide additional evidence that fluids released in motor vehicle waste disposal wells commonly exceed MCLs and that these wells have been linked with environmental contamination. For example, one report shows that out of 38 motor vehicle facilities in the State of New York, 20 had injectate above MCLs entering drywells and 19 had injectate above MCLs entering septic

systems. Out of 27 case study files reviewed in Region II, nine had documented incidents of ground water and/or soil contamination. Region VIII submitted both laboratory reports from motor vehicle waste disposal facilities in Montana and two reports from South Dakota which included injectate sampling data. All facilities exceeded primary drinking water standards in one or more sampling events for volatile organic compounds (VOCs) and/or heavy metals. For example, benzene was detected in some samples at 1.1 to 22 times the MCL. Tetrachloroethylene levels were seen ranging from 1.1 to 38 to 280 times MCL and methylene chloride at 96 times the MCL. Some metals were found to exceed the hazardous waste toxicity characteristic levels.

Only one commentor addressed these data specifically. This commentor believed the data support their contention that motor vehicle wells cannot be categorically classified as high risk. The commentor noted that less than one percent of all Class V well contamination cases in Region II involved ground water contamination.

EPA believes the injectate data and contamination cases cited in the NODA from the study and Regions II and VIII support the 1998 proposal that motor vehicle waste disposal wells warrant additional federal regulation. The additional information confirm that samples of injectate exceed the MCLs for volatile organic compounds and metals. In some cases, contaminants exceeded RCRA toxic characteristic levels. This data is consistent with information collected to support the proposed rule making and supports EPA concerns about potential endangerment of drinking water by these wells. However, the Agency recognizes that there may be situations in which an owner or operator of a Class V motor vehicle waste disposal well could implement best management practices (BMPs) and/or install treatment measures such that the waste injected would not exceed the MCL or other health based standards and could therefore remain open without endangering USDWs. For that reason, today's rule allows owners and operators of existing Class V motor vehicle waste disposal wells to seek a waiver from the ban and apply for a permit.

## 3. Contaminant Occurrence Report

This report summarizes occurrence data from finished water collected from 14 different State databases for public drinking water systems. In total, the data include over 10 million analytical

results from over 25,000 public water systems. Only contaminants that were tested in a significant number of systems (e.g., several hundred or more) in at least one of the State databases were evaluated in the report. Twenty-three contaminants known or believed to be associated with motor vehicle waste disposal wells were selected for analysis. Each of the 23 contaminants were detected in ground water based systems at concentrations greater than the MCL.

The results of the analysis show that contaminants associated with Class V wells occur in public drinking water systems across the nation. Contaminant occurrence varied widely from State to State. For example, 12.8% and 19.4% of the ground water systems in certain States detected trichloroethene and 1,1,1-trichloroethane, respectively. Furthermore, all contaminants were detected at levels that exceeded the MCL. In certain States, 2.0% of ground water systems exceeded the MCL for mercury and 5.7% of ground water systems exceeded the MCL for tetrachloroethylene (PCE). Determining the source of the contamination was beyond the scope of this report, but the occurrence data clearly demonstrates that contaminants known to be associated with Class V wells occur nationally in public water systems.

## IV. Description of Today's Action

Today EPA is finalizing additional requirements for motor vehicle waste disposal wells and large capacity cesspools, to embrace priorities and help achieve goals defined under the 1996 Amendments to the SDWA, and to fulfill the first phase of the Agency's requirements under the 1997 consent decree with the Sierra Club.

Class V wells are currently authorized by rule as long as (1) they do not endanger USDWs, and (2) the well owners or operators submit basic inventory and assessment information. If a Class V well may endanger USDWs, UIC Program Directors can require the owner/operator to apply for a permit, order preventive actions (including closure of the well) to prevent the violation, require remediation to assure USDWs are protected, or take enforcement action. These, and other existing federal requirements and authorities will continue as basic elements of EPA's Class V strategy, applicable to all Class V wells in all areas.

Consistent with the 1997 decree, EPA is taking a step-wise approach to supplement the existing program and ensure Class V injection wells do not endanger USDWs. This approach

consists of (1) an initial rule creating additional requirements for some of the Class V well types determined by EPA, as an initial matter, to be higher risk, and (2) further study of other types of Class V wells not covered in the initial rule to provide the factual basis for further regulatory action, as necessary.

As the first step of its Class V strategy, EPA is today finalizing additional requirements for two categories of Class V injection wells determined by EPA to be a source of endangerment to drinking water. Specifically, the rule covers: (1) Existing motor vehicle waste disposal wells located in ground water protection areas delineated for community water systems and non-transient non-community water systems that use ground water as a source and other sensitive ground water areas as delineated by States; and, (2) new and existing large-capacity cesspools and new motor vehicle waste disposal wells nationwide. The conclusion that these Class V wells pose an endangerment is based on substantial information and the combined professional judgment of EPA and State geologists and engineers that are responsible for implementing the Class V UIC program.

In the case of motor vehicle waste disposal wells, today's rule has been developed to use and promote linkages between the Class V UIC program and EPA's State Drinking Water Source Assessment and Protection Program. Both programs are authorized by the SDWA. The UIC Program is designed to protect all current and potential USDWs from contamination by injection wells. The State Drinking Water Source Assessment and Protection Program is structured to identify all potential sources of contamination within areas that provide short-term recharge to public water supply wells and surface water intakes.

The focus on ground water protection areas and other State delineated sensitive ground water areas is a key element for the protection of current and future drinking water sources. Areas delineated under the State Drinking Water Source Assessment and Protection Program represent, at a minimum, areas designated to receive top priority for the protection of existing public drinking water supplies. Sensitive ground water areas are ground water areas identified by the State as needing additional protection from Class V wells with injectate likely to endanger drinking water. Consistent with this prioritization, this rule uses a phased-in approach that targets motor vehicle waste disposal wells in ground water protection areas first, and State designated sensitive ground water areas

at a later date. This allows States to prioritize critical ground water areas initially and phase-in other priority protection areas at a later time.

The decision to regulate motor vehicle waste disposal wells is based on the high potential for these wells to endanger USDWs. Motor vehicle waste disposal wells are located throughout the country—mainly in populated areas—at a variety of facilities, such as automobile service stations, car dealerships, automotive repair shops, and specialty repair shops (e.g., transmission shops, muffler shops, body shops). They tend to be shallow, with injection occurring into or above USDWs. They also tend to be uncased, which could allow contaminated fluids to move more easily into USDWs. Given all of these factors, the quality of fluids they inject becomes very important in determining whether these wells are a threat to USDWs.

Although the development and use of BMPs by the automotive industry have improved recycling and waste disposal practices over the past decade, EPA is concerned about motor vehicle-related facilities which inject fluids with little or no treatment. These fluids, which may be injected intentionally for waste disposal or accidentally as a result of spills or leaks, include spilled gasoline and oil, waste oil, grease, engine cleaning solvents, brake and transmission fluids, and antifreeze. Such fluids contain potentially harmful contaminants, often in high concentrations. For example, fluids containing waste oils or gasoline generally include benzene, toluene, xylenes, and other volatile contaminants. Waste oils and antifreeze also contain some priority pollutant heavy metals, such as barium, cadmium, chromium, and lead. Other contaminants that may be injected include methylene chloride, a compound found in many degreasers, and ethylene glycol, a component of antifreeze. All of these contaminants can be toxic above certain levels. Some, such as benzene and toluene, have the potential to cause cancer.

Data collected for the 1987 Report to Congress and from later EPA Regional investigations indicate that fluids being injected may exceed health-based limits for contaminant levels in water by 10 to 100 times (see p. 5–19 of the August 1989 Class V Task Force Report available in the docket). These data were confirmed for a number of motor vehicle service stations during the implementation of a 1991 National Administrative Order addressing failures to submit inventory information required under 40 CFR 144.26 and

146.52(a). Analyses of fluids disposed at a group of facilities subject to this order found a total of 13 contaminants present in concentrations above the drinking water MCL, although not all contaminants exceeded the MCL in every sample at every facility (see Data from the National Administrative Order on Motor Vehicle Waste Disposal Wells, March 16, 1998, available in the docket). For example, benzene concentrations exceeded the drinking water MCL at 19 of the 20 facilities tested and in 32 of 35 samples analyzed. The highest measured benzene concentration was 40 times the MCL. Similarly, arsenic exceeded the MCL at 11 of 17 facilities and in 18 of 30 samples, with the highest arsenic concentration being 31 times the MCL.

The injection of used petroleum products may leave behind an oily residue within the wells. A 1995 report on natural bioattenuation of hazardous organic compounds in the subsurface states: "Most organic contaminants, however, enter the subsurface as an oily liquid, such as a fuel spill or release of chlorinated solvent. Groundwater moving through the material dissolves a small portion of the contaminant, which becomes a plume of groundwater contamination. Because the contaminant mass in the oily material is much greater than that dissolved in the groundwater, the spill can continue to maintain the plume more or less indefinitely. As the plume moves away from its source natural biological processes may attenuate the contamination in the groundwater."<sup>1</sup>

Examples of instances where motor vehicle waste disposal wells have endangered USDWs include a case in Missoula, Montana, a sole-source aquifer area, where investigations starting in June of 1988 discovered that PCE from operating drainage wells at auto service stations had contaminated community wells serving approximately 45,000 people.<sup>2,3</sup> Three community wells were closed and another 15 have elevated levels of PCE. In Gilford, New Hampshire, a March 1988 assessment of a site with a garage, a tire center, auto body shop, and a U.S. Army Reserves maintenance shop discovered that operating floor drains had contaminated

<sup>1</sup> Anderson, William, *Innovative Site Technology, Bioremediation*, Chapter 3.4, page 1, 1995

<sup>2</sup> Background Paper prepared by Alan English, Missoula City-County Health Department for U.S. EPA Underground Injection Control Program, February 1992.

<sup>3</sup> An Investigation of the Volatile Organic Content of Sludges, Soils and Liquids Entering the Missoula Aquifer from Selected Sources," prepared by the Missoula City-County Health Department, Environmental Health Division, Contributors: Tom Barger and Alan English, July 27, 1990.

the ground water, the soil, and an on-site water supply with PCE.<sup>4</sup> In Exton, Pennsylvania, trichloroethylene (TCE), PCE, and 1,1,1-trichloroethane from a stone bed drain field connected to floor drains of an auto repair/body shop operating until 1984, contaminated ground water that supplies drinking water to about 76,700 people.<sup>5</sup> In Liberal, Kansas, solvents disposed in a septic system by an engine repair shop resulted in volatile organic compound (VOC) contamination of several water supply wells in 1982; concentrations of VOCs in the septic system were as high as 32,000 ug/l.<sup>6</sup> As presented in Section III.C, additional data from Region II, Region VIII and the Class V study show exceedences of the MCLs for volatile organic compounds and metals in Class V motor vehicle waste disposal well injectate.

EPA believes many of the industries that operate motor vehicle waste disposal wells are making efforts to implement best management practices, waste minimization techniques, and recycling to reduce their impact on the environment and lower operating costs. However, more recent information presented in the NODA and EPA's experience implementing Class V programs across the country indicate that contamination of drinking water supplies from endangering motor vehicle waste disposal wells is a problem that still needs to be addressed.

Some commentators opposed the proposed approach for motor vehicle waste disposal wells. They felt motor vehicle waste disposal wells did not pose a risk to USDWs when located in ground water protection areas and should not be banned. They contended that the industry has instituted BMPs and recycling, and therefore, are no longer disposing of motor vehicle wastes in these wells. While EPA agrees that the use of BMPs and recycling have improved, motor vehicle waste disposal wells in ground water protection areas and sensitive ground water areas still pose a potential endangerment to USDWs. However, there are indications that with treatment, BMPs and recycling, facilities can meet MCLs and continue to use their wells. Therefore, existing motor vehicle waste disposal

wells are banned in ground water protection areas and other sensitive ground water areas, but owners and operators can seek a waiver from the ban and obtain a permit. Additionally, EPA is banning new motor vehicle waste disposal wells statewide. The Agency will also issue guidance on conversion of motor vehicle wells to another type of Class V well if owners and operators take certain steps to prevent motor vehicle waste from entering the well. EPA has also extended the compliance time from 90 days to one year to enable owners and operators to explore all options available for compliance.

Large-capacity cesspools have a high potential to contaminate USDWs because: they are not designed to treat sanitary waste; they frequently exceed drinking water MCLs for nitrates, total suspended solids and coliform bacteria; and, they may contain other constituents of concern such as phosphates, chlorides, grease, viruses, and chemicals used to clean cesspools such as trichloroethane and methylene chloride. Pathogens in untreated sanitary waste released into large-capacity cesspools could contaminate the water supply sources such as transient systems and pose an "acute" risk if consumed (meaning there could be a serious health risk with a single exposure given the nature of contamination). This is a particular concern for Class V cesspools located in hydrogeologic settings that would permit pathogens to migrate to a ground water supply well that serves a transient system with inadequate disinfection of the water or individual wells. To further limit the acute risk associated with large-capacity cesspools, EPA expanded today's large-capacity cesspool requirements nationwide.

EPA proposed additional requirements for industrial waste disposal wells to meet the MCLs and other health based standards at the point of injection. Many commentators questioned why the Agency chose to regulate a wide range of industries with different disposal practices with one approach. Some commentators suggested requirements similar to those proposed for motor vehicle waste disposal wells, to either ban industrial wells or require site specific permits. Still others felt the industrial category was too diverse and types of industrial waste streams should be regulated based on their specific characteristics and risks. After consideration of these comments, EPA agrees that the industrial category is diverse and represents a variety of waste streams. For this reason, EPA is not including requirements for industrial

waste disposal wells in today's final rule. Industrial waste disposal wells will be studied further and addressed in a future rule making.

EPA underscores that this initial rule targets certain ground water protection areas for the purpose of prioritizing national policy. The rule does not establish differential levels of protection for different areas, but rather proposes specific measures EPA believes are necessary to ensure that potentially problematic Class V wells do not endanger USDWs in the highest priority areas. The prohibition against endangerment of USDWs, found in § 144.12 of the existing UIC regulations, continues to apply to all Class V wells and all areas, whether or not a State has completed its State Drinking Water Source Assessment and Protection Program. Section 144.12(a) in particular provides that no injection-related activity may be conducted "in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 142 or may otherwise adversely affect the health of persons." Similarly, § 144.12(c) and (d) authorize a variety of actions if a Class V well may cause a violation of primary drinking water regulations or otherwise adversely affect the health of persons.

In addition to § 144.12, other existing UIC authorities continue to be available to control Class V wells on a case-by-case basis, as needed to protect USDWs in any area. These can include requiring a permit under §§ 144.25 and/or requiring submission of additional inventory information under § 144.26. In States with EPA-administered programs, the inventory requirements under § 144.26 can be supplemented by additional information requirements, including ground water monitoring, analysis of injected fluids, or submission of geologic information under § 144.27.

EPA expects and strongly encourages States to use these existing authorities to take whatever measures are needed to ensure Class V wells are not endangering USDWs in any other areas beyond ground water protection areas and sensitive ground water areas. If believed to be necessary, States should apply the same requirements in this rule to these and other areas and/or to other Class V wells. Nothing in this rule precludes a State or local government from promulgating more stringent requirements above and beyond the existing UIC authorities.

<sup>4</sup> Background information titled "5X28 Service Station, Gilford, NH" available in the docket. This background information was obtained from U.S. EPA Region 1 staff in May 1990.

<sup>5</sup> Superfund Site Fact Sheet, A.I.W. Frank/Mid-County Mustang Site, Pennsylvania, EPA ID# PAD004351003, Last Update: March 1998. <http://www.epa.gov/reg3hwmd/super/aiwfrank/pad.htm>.

<sup>6</sup> Site Description Printout for the Panhandle Eastern Pipeline Site, from Teresa Hattan, Kansas Department of Health and Environment, July 15, 1998.

### A. Definitions/Terminology

#### 1. Ground Water Protection Areas

At § 144.85, the proposal specified that only those owners or operators of motor vehicle waste disposal wells and large-capacity cesspools that are located in delineated source water protection areas for community or non-transient non-community water systems that use ground water as a source must meet the requirements of the rule. However, EPA's Final Guidance for Source Water Assessments and Protection Programs (8/97), does not require States to call their delineated areas "Source Water Protection Areas" and the State Drinking Water Source Assessment and Protection Programs submitted to EPA to date indicate that States may identify these areas by other names (e.g., source water assessment areas, ground water areas). Therefore, to avoid the confusion these terms may cause, the term "ground water protection areas" will be used in this rule to identify areas delineated and assessed under section 1453 of the Safe Drinking Water Act for community and non-transient non-community water systems that use ground water as a source, and are therefore subject to this rule. In cases where the State delineates zones or areas representing various levels of protection, the State would determine which areas correspond to ground water protection areas for the purposes of this rule.

#### 2. Sensitive Ground Water Areas

The phrase "sensitive ground water area" was not used in the proposed Class V rule. However, the proposal recognized that areas beyond ground water protection areas might warrant additional protection and requested public comment on whether the new Class V regulations should apply beyond these areas, possibly statewide, to ensure protection of USDWs.

EPA received many comments recommending that the rule requirements extend beyond ground water protection areas in order to protect future sources of drinking water and to protect the public health of persons using individual wells. EPA agrees with those commentors and expanded the requirements to owners or operators of motor vehicle waste disposal wells located in additional sensitive ground water areas, as designated by the program director. The phrase "sensitive ground water areas" in this rule refers to ground water areas that are critical for public health protection because of hydrogeologic and other features that would cause USDWs to be vulnerable to contamination from

the well-types regulated by this action. A general definition of other "sensitive ground water areas" has been included in the final rule at § 144.86. This definition should act as a guide to regulators when delineating sensitive ground water areas. At § 145.23 EPA requires States, as part of their Class V program revision, to submit a plan for delineating other sensitive ground water areas (unless the State chooses to implement the program statewide). Program revisions are subject to public review and, therefore, the public will have the opportunity to comment on the States approach to delineating other sensitive ground water areas. EPA is not requiring States to submit a plan for ground water protection areas as part of their program revision because, as required under 1453 of the Safe Drinking Water Act, each State's Drinking Water Source Assessment and Protection Program outlines the States plan for conducting ground water protection area assessments and has already undergone public review and is undergoing EPA review. EPA also intends to provide States with further guidance on delineating sensitive ground water areas. Guidance documents will be made available from EPA Regional Offices or through the Safe Drinking Water Hotline.

#### 3. Point of Injection

In the proposed Class V rule, the phrase "point of injection" was used at § 144.88 to establish where fluids injected into a well would be required to meet MCLs and other health-based standards. The proposal, however, did not define the term "point of injection."

Several commentors requested that this term be defined to avoid confusion. Other commentors expressed concern about where the "point of compliance" would be and suggested various points to measure compliance, ranging from "point of use" to the property boundary. Others recommended not defining the point of injection, because a highly prescriptive definition of the "point of injection" would be difficult to implement due to the many different engineering configurations of Class V wells.

To resolve this issue, EPA sought public comment in the May 21, 1999, NODA on the need for the final Class V regulation to clearly define the "point of injection." The majority of the commentors on the NODA supported defining the point of injection for Class V wells as the distribution box (for the case of septic systems) or the end of the pipe for injection wells. One commentor stressed the need to give UIC Directors

the authority to determine the point of injection on a case by case basis.

In response to public comment, EPA has decided to define "point of injection." Taking into account the difficulties of applying a specific definition to a variety of wells, "point of injection" is defined as, "the last accessible sampling point prior to waste fluids being released into the subsurface environment," at § 144.3. For septic systems, the last accessible sampling point might be the distribution box, for injection wells the last accessible point prior to injection would be the end of the pipe. This definition, in addition to a guidance document, should act as a guide to regulators and Class V well owners and operators, regardless of well configuration, when determining the most appropriate sampling point to determine compliance.

#### 4. Motor Vehicle Waste Disposal Wells

In its proposal, EPA determined that injection wells located in ground water protection areas that receive waste fluids from the servicing of motor vehicles pose an endangerment to underground sources of drinking water. Motor vehicle waste disposal wells are defined at § 144.81 (16) as follows "Motor vehicle waste disposal wells receive or have received fluids from vehicular repair or maintenance activities, such as an auto body repair shop, automotive repair shop, new and used car dealership, specialty repair shop (e.g., transmission and muffler repair shop), or any facility that does any vehicular repair work."

### B. Industrial Waste Disposal Wells

In the July 29, 1998 notice, EPA proposed additional requirements for the group of Class V wells categorized as "industrial" when located in ground water protection areas because these well types may pose an endangerment to underground sources of drinking water. The proposed industrial well category included a wide range of industries disposing of wastes from such various industries as animal hospitals, environmental laboratories, dry cleaners, and oil refineries. In addition to representing a wide range of industrial discharges, these wells vary in construction, depth, and operation. The Agency solicited comment on the appropriateness of designating industrial wells as high risk and regulating them under this rule.

Based on public comment, EPA now believes that, although these wells may pose high risks to underground sources of drinking water, the well category as defined in the proposal may be too diverse to follow the same regulatory



approach. EPA believes that more information is needed to formulate an effective program for these wells and wastestreams. As a result, EPA has decided to defer finalization of the 1998 proposal for this category of wells.

### *C. Coverage of the Rule*

#### **1. Large-Capacity Cesspools**

The proposed rule banned large-capacity cesspools in ground water protection areas. However, in the preamble to the proposed rule, the Agency recognized that there may be instances where pathogens in untreated sanitary waste released from Class V large-capacity cesspools could pose an acute health risk (*i.e.*, a person could become ill by taking one drink from an affected drinking water supply) and sought comment on the merits of broadening the coverage of the rule to include ground water protection areas for transient public water systems and possibly statewide. Many commentors supported the idea of extending the ban on large-capacity cesspools, due to concerns over one-time exposure to pathogens in drinking water. Some commentors supported extending the ban to ground water protection areas delineated for transient non-community systems that use ground water as a source, but the majority of commentors supported statewide coverage, primarily because of the acute risk these wells pose, the nature of the contaminants and the on-site disposal alternatives available to owners or operators.

Based on these public comments, EPA has decided to ban new and existing large-capacity cesspools nationwide. EPA believes that extending the rule's coverage is the most appropriate course of action given that many States already ban new large-capacity cesspools, the acute nature of the risks posed by these wells, and the relative ease of developing alternative means to dispose of sanitary waste on-site.

#### **2. Motor Vehicle Waste Disposal Wells**

The proposal would have regulated motor vehicle waste disposal wells in ground water-based community and non-transient, non-community ground water protection areas, but encouraged States to use existing UIC authorities to ensure Class V wells are not endangering USDWs beyond those areas. However, the proposal recognized that additional protection and requested public comment on whether the new Class V regulations should apply to motor vehicle waste disposal wells beyond ground water protection areas.

One-third of the commentors on this issue opposed expanding the rule.

These commentors believed existing authority adequately protected USDWs outside of ground water protection areas, EPA would be exceeding its authority, limited resources and the need for State flexibility would inhibit implementation of the rule in additional areas, and additional regulatory burden would be placed on well owners or operators outside ground water protection areas.

About one-half of the commentors on this subject favored expanding the requirements for motor vehicle waste disposal wells beyond ground water protection areas. A number of these commentors specified additional areas where the regulation should apply, including impaired ground water areas, critical aquifer protection areas, sole-source aquifers, aquifer storage and recovery areas, sand/gravel/karst aquifers, national parks, possible future USDWs, rural areas with private wells, and the entire State. Some commentors suggested phasing in additional sensitive ground water areas over time.

Commentors supporting expansion sought to ensure protection of all USDWs and uniform application of the regulations. Others believed that expansion of the rule is needed to protect future sources of drinking water, private drinking wells, and other sensitive ground water areas not included in ground water protection areas.

The NODA requested comment on an approach to expand the rule beyond ground water protection areas to other sensitive ground water areas that the State identified and phasing in the implementation of the rule in these additional areas. Eleven commentors addressed the addition of sensitive ground water areas and nine commentors addressed the phased approach to implementation. For expansion of the rule beyond ground water protection areas, seven commentors supported the need to protect additional areas with two of the commentors recommending statewide coverage of the rule. Three commentors opposed expansion, stating that limiting the rule to ground water protection areas adequately protected USDWs. Seven commentors supported phasing in the regulations beyond ground water protection areas. They agreed that the given time frame allowed adequate time for owners/operators and States to implement the rule, and the phase in would assist States in prioritizing areas for implementation of the rule. Two commentors opposed the phasing in of

any additional sensitive ground water areas.

EPA agrees with those commentors suggesting additional areas need to be covered by this rulemaking. The State Source Water Protection Program provides protection for areas directly around public drinking water supplies and does not consider or protect drinking water sources that are not currently being used. In addition, limiting the rule to ground water protection areas does not take into consideration factors such as contaminants that could readily migrate to existing water supplies, sole source aquifers, and individual well fields. Therefore, the Agency feels it is important to extend the rule beyond ground water protection areas to fulfill its mandate to protect current and future drinking water sources. Thus, EPA, at § 144.85, regulates existing motor vehicle wells in both ground water protection areas and other sensitive ground water areas, as delineated by the Director and bans new motor vehicle waste disposal wells nationwide. In delineating sensitive ground water areas, both Primacy States and EPA Regions (for DI States) should evaluate the hydrogeologic setting and consider such factors as: the presence or absence of karst topography, fractured bedrock, sandstone, and/or confining layers; the depth to ground water; significance as a drinking water source; and future uses of the land. Primacy States and EPA Regions (for DI States) must implement the rule for existing motor vehicle waste disposal wells in ground water protection areas within one year of the completion of the local assessments, and must delineate sensitive ground water areas by January 1, 2004 and implement the rule in these areas by January 1, 2007.

#### *D. Ban of Large-Capacity Cesspools*

As discussed in section IV of this preamble, concerns over "acute" health risks have led EPA to extend the ban of large-capacity cesspools to all large-capacity cesspools nationwide. Separate from this issue of the rule coverage, however, is whether large-capacity cesspools should be banned.

The majority of commentors supported the ban. The prevailing opinion among these commentors was that strong steps need to be taken to keep pathogens from these wells from entering drinking water sources. The use of new large-capacity cesspools is recognized as an inferior method of disposing of waste that can be remedied by the installation of a septic system and has already been banned by many States. Thus, in response to the many

concerns expressed regarding acute contaminants in cesspools, EPA has banned new and existing large-capacity cesspools nationwide.

#### *E. Requirements for Motor Vehicle Waste Disposal Wells*

##### **1. Ban New Wells and Require Existing Wells To Either Close or Get a Permit**

EPA co-proposed a ban and a ban with a waiver for existing motor vehicle waste disposal wells. The alternative allowing a waiver for existing wells would include a permit requiring waste fluids to meet MCLs and other health-based standards at the point of injection, owners or operators to adopt practices such as BMPs, and provide injectate and sludge monitoring.

Half of the commentors opposed the idea of waivers, believing a ban was necessary to prevent endangerment of current and future drinking water sources. Commentors' concerns with a permit program included: inadequacy of monitoring and sampling; limited technical knowledge on the part of many owners/operators to ensure that USDWs are not being threatened; and the burden on regulating agencies to satisfactorily implement and enforce a permit program. Pointing to the vulnerability of motor vehicle waste disposal wells to accidental spills of motor vehicle fluids, some commentors thought that any well left open would violate the existing non-endangerment provision in 40 CFR 144.12(a) of the UIC regulations. Some of these commentors recommended that if the waiver option was chosen, the permit must: (1) include sampling to determine the baseline quality of ground water; (2) specify that injection of waste must not degrade the current quality of the ground water, or must meet MCLs, whichever is more stringent; (3) include continued ground water sampling; (4) specify, based on the baseline quality of ground water, that no new substances can be introduced; and (5) specify that MCLs, other health-based standards, or Best Available Technologies (BATs) are utilized, whichever is most stringent.

Some of the commentors favored the waiver option, viewing a ban to be unnecessary and supporting the additional flexibility a waiver would allow States and industry. Commentors suggested a range of permit requirements including monitoring, sampling, training, and technology requirements. Some States expressed concern with sampling costs, site-specific criteria, and compliance assurance.

EPA believes there is a high potential for endangerment of drinking water

sources from motor vehicle waste disposal wells located in ground water protection areas and other sensitive ground water areas. However, EPA recognizes that treatment technologies and BMPs, if properly implemented, could allow wastewater to meet MCLs and other health-based standards at the point of injection. Therefore, today's final rule promulgates a ban with a waiver option for existing motor vehicle waste disposal wells. UIC Directors should use their best judgment when issuing waivers from the ban, and consider factors such as cost effectiveness, maintenance of treatment systems, potential for impacting water systems, a facility's compliance history, and records showing waste recycling.

The specific permit requirements could vary from one well to the next, but would have to include the following three conditions at a minimum. First, owners or operators would have to make sure fluids released in their wells meet the primary drinking water MCLs and other appropriate health-based standards at the point of injection. Second, owners or operators would have to follow specified BMPs for motor vehicle-related facilities. Third, owners or operators would have to monitor the quality of their injectate and sludge (if present in dry wells or tanks holding injectate) both initially and on a continuing basis in order to demonstrate compliance with the MCLs. The rule, however, does not specify monitoring requirements that must be followed, leaving those instead to the discretion of the Director to specify in the permit.

When all of these requirements are put together, EPA believes the permit would specify the following kinds of monitoring requirements, but recognizes that States will design monitoring requirements appropriate to the situation. As a first step, owners or operators might be required to characterize the quality of their injectate and any sludge. If liquid from the sludge has chemical concentrations below the MCLs, owners or operators might be required to analyze the injectate quarterly for the first three years and then annually if it is consistently below the MCLs. They also might be required to analyze their sludge annually. If the injectate is below the MCLs but liquid from the sludge is above the MCLs, then owners or operators might have to follow the same monitoring requirements as above plus pump and properly dispose of their sludge. Finally, if the injectate is above the MCL and the liquid from the sludge is above the MCL, then the owner or operator would need to: (1) Install treatment to meet permit requirements to meet MCLs

and other health based standards at the point of injection; (2) pump and properly dispose of their sludge; (3) perform quarterly sampling of injectate for the first three years and then annually if consistently below the MCLs; (4) perform annual sampling of the sludge; and (5) other requirements established by the Director to protect USDWs.

Although the rule envisions that States will issue individual permits, States are not precluded from issuing a general permit to a group of facilities that have similar characteristics. For instance, there may be a number of service stations in an area that have similar waste streams, BMP's, good compliance histories and for which the permit conditions would be identical. Another example could be a group of facilities owned by a municipality that are used for a similar purpose, have similar waste streams and follow that same procedure, including BMPs. General permits would have to specify the initial and ongoing monitoring requirements, BMPs, and that MCLs and other health based standards must be met at the point of injection. State regulations would have to include provisions for these general permits, including their conditions and where they could apply.

##### **2. MCLs at the Point of Injection**

Under the ban with a waiver option proposed for existing motor vehicle waste disposal wells, such wells would be allowed to stay open subject to a permit that, among other things, requires waste fluids to meet MCLs and other health-based standards at the point of injection. As discussed in the preamble to the proposed rule, some members of the Small Business Advocacy Review Panel thought that EPA should allow MCLs to be exceeded (e.g., by 10 or 100 times) for certain contaminants under certain conditions. These Panel members pointed out that metals and some other contaminants are attenuated as they migrate through soil prior to reaching the water table and are diluted within an aquifer prior to reaching a drinking water withdrawal well.

The majority of commentors supported the proposal to meet MCLs and other health-based standards at the point of injection. In general, these commentors believed that allowing injection at levels above the MCL would be the same as providing "a permit to pollute," and that it would be illogical for EPA to use the MCLs as cleanup benchmarks at Superfund sites, yet allow new ground water contamination by permitting injection above the MCLs.

Several of these commentors also believed it was not realistic to expect small businesses that own or operate motor vehicle waste disposal wells to be able to determine whether their site-specific conditions were suitable to safely allow injection at levels higher than the MCLs.

A few commentors were concerned that MCLs at the point of injection was not protective enough, believing instead that background concentrations in ground water should be used as the standard or that the rule should prohibit the introduction of any potentially hazardous chemical into USDWs, even when present in concentrations below MCLs. About a third of the commentors opposed the proposed requirement, believing that it was unnecessary to protect USDWs where contaminant dilution and/or attenuation was expected to be significant and that it would impose an undue burden on well owners or operators.

Based on these public comments, today's final rule requires fluids released into motor vehicle waste disposal wells to meet MCLs and other appropriate health-based standards at the point of injection, as one of the permit conditions that have to be met when such wells remain open under the waiver option. EPA also believes that developing a set of conditions within which a motor vehicle waste disposal well could release fluids that exceed drinking water standards without endangering USDWs is not a viable option for most small businesses and regulatory authorities because of the difficulty and expense involved in collecting the site-specific hydrologic, geologic, and soil information needed to determine that injection above the MCLs does not endanger USDWs. EPA believes that requiring MCLs and other health based standards to be met at the point of injection is necessary to ensure that motor vehicle waste disposal wells meet the non-endangerment provision in § 144.12(a). In future rulemaking, the regulatory controls needed to prevent endangerment from other types of Class V wells will be evaluated on a case by case basis. House Report 13002 (July 10, 1974) stated that the UIC endangerment standard should be "liberally construed so as to effectuate the preventive and public health protective purposes" of the SDWA (A Legislative History of the Safe Drinking Water Act, Committee Print, February, 1982, at 564). More specifically, in defining endangerment, the House Report states that "actual contamination of drinking water is not a prerequisite either for the establishment of regulations or permit

requirements or for the enforcement thereof." *Id.*

### 3. Reclassification of Certain Motor Vehicle Wells

The proposed rule did not address specific conditions or requirements for converting a Class V motor vehicle waste disposal well to another kind of Class V well. The preamble to the proposed rule, however, did discuss how a motor vehicle service facility might continue to operate its Class V well if all motor vehicle waste fluids generated at the facility were segregated and only other liquids, such as stormwater, ice melt, and wastewater from carwashes, were allowed to enter the injection well. The preamble to the proposed rule suggested actions that could result in a well being converted, including performing motor vehicle maintenance in areas that do not drain into the Class V well, or installing a semi-permanent plug (also known as a plumber's plug) in the sump outlet leading to the injection well.

The proposal advised that for the use of a semi-permanent plug to be acceptable, the plug would truly have to be semi-permanent. It could not be easily removed, as this would create the potential for the well to remain open and subject to abuse. Because of these concerns, the proposal specifically requested comment on the use of semi-permanent plugs, particularly on their limitations and on circumstances where their use is or is not appropriate.

Most of the public comment received on motor vehicle waste disposal well conversions addressed the use of semi-permanent plugs, with the majority opposing their use. Concerns included potential for improper disposal of wastes, economic incentives to dispose of automotive wastes in the well, and the regulatory program's inability to maintain an adequate field presence to ensure such plugs are being properly used. The majority of these commentors preferred permanent closure of the well.

Supporters of semi-permanent plugs maintained that inappropriate wastes would not enter the drain, adding that the flexibility to inject appropriate fluids while avoiding the costs of well closure is an important option for small businesses. Commentors suggested provisions be added to ensure abuse does not occur.

EPA agrees with commentors concerned with the potential misuse and/or abuse of floor drains in motor vehicle-related facilities. However, because of the need expressed by small businesses, EPA will allow motor vehicle waste disposal well conversions at the UIC Directors' discretion as long

as no motor vehicle waste can enter the well. The Director must ensure that all motor vehicle fluids are physically segregated from the fluid being injected and the unintentional or illicit discharge of motor vehicle waste is unlikely based on a facility's compliance history and records showing proper waste disposal. Based on the concerns expressed through public comment, the use of semi-permanent plugs will not be considered as a viable means to segregate waste. EPA believes that in order to meet the requirements for well conversion, owners or operators of converted Class V wells in motor vehicle related facilities will need to implement BMPs. In addition, in order to meet the requirements for well conversion, owners and operators must take measures to ensure that motor vehicle waste fluids are physically segregated from the injection well. EPA plans to develop a guidance document for the conversion of motor vehicle waste disposal wells.

### 4. Storm Water Wells at Motor Vehicle Waste Disposal Sites

During stakeholder meetings and through public comment, commentors expressed concern over the classification of storm water drainage wells located at motor vehicle facilities. In the proposed rule, EPA solicited comment on ways of defining storm water wells and distinguishing them from motor vehicle waste disposal and industrial wells. While this final rule does not address industrial or storm water injection wells, it is important to clarify EPA's position regarding storm water wells located at motor vehicle facilities.

Storm water drainage wells located at motor vehicle facilities that are intended for storm water management but that also may receive insignificant amounts of fuel due to unintentional small volume leaks, drips, or spills at the pump are not considered motor vehicle waste disposal wells and are not subject to this rule. The Agency will develop guidance to assist owners/operators in determining if their well is a motor vehicle waste disposal or drainage well.

### F. Compliance Period

At § 144.87, the proposed regulation provided 90 days after the local assessment for ground water protection areas is completed for owners/operators of existing motor vehicle waste disposal wells in those areas to either close their wells or submit an application for a waiver, if allowed. The UIC Program Director would have the flexibility of extending the 90-day deadline for up to one year.

While one commentator supported the proposed compliance period, the majority of the commentators opposed the 90-day deadline. Reasons for opposition included the burden on small businesses and States, as well as potential difficulties in disseminating information and finding alternative means for wastewater disposal within that time frame. These commentators recommended that the deadline be extended anywhere from 180 days to two years, with the majority suggesting a one-year compliance period.

EPA agrees with the majority of the commentators that a 90-day compliance period may not be sufficient to comply with the new requirements. Therefore, EPA has extended the compliance period to one year after completion of the local assessment for ground water protection areas. However, EPA strongly encourages owners and operators who wish to apply for a waiver to do so within 90 days of the completion of their local assessment for ground water protection areas to insure they are operating under permit conditions within the one year compliance period. The additional time will allow State UIC staff to conduct outreach and will provide owners and operators additional time to achieve compliance. In addition, as proposed, the UIC Director may grant a one-year extension if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technologies.

#### *G. Deadlines for Delineations of Covered Areas*

##### **1. Drinking Water Source Assessment Program Not Completed On Time**

The proposed rule, at § 144.87(b), states that if a State does not complete its EPA approved Drinking Water Source Assessment Program for its community water systems and non-transient non-community water systems by May 2003, the regulations will apply statewide permanently. This deadline was chosen because it assumed all States would meet the deadlines in Section 1453 of the SDWA and that EPA would approve an eighteen month extension for States to complete assessments, which would be in May of 2003. The proposal requested comments on alternative approaches.

About one quarter of the commentators on this issue agreed that the requirements should apply statewide if a State's Drinking Water Source Assessment Program is not complete by May 2003, noting that this option would maintain consistency throughout each State.

The remaining commentators on this issue opposed either permanent statewide application of the rule or the May 2003 deadline. Many of those opposed were concerned with the burden on owners and operators. A few commentators asserted that statewide implementation would exceed EPA's authority under the SDWA, that States do not need an added incentive to complete Drinking Water Source Assessment Programs, or that permanent statewide application of the rule would discourage partnerships between States and owners or operators.

Several commentators suggested variations on the statewide proposal, such as: phased implementation linked to Drinking Water Source Assessment completion; exempting wells on a case-by-case basis from a statewide ban; and, exempting areas of the State where delineations were completed but Drinking Water Source Assessments were not.

Commentors who opposed the proposal also expressed concern that the pressure to complete a State's Drinking Water Source Assessment Program by the May 2003 deadline may hinder a State's effort to develop an effective program. Other commentators supported an extension in May 2003 if a State could show significant progress on its Drinking Water Source Assessments or utilizing financial incentives to encourage States to complete their Drinking Water Source Water Assessment Program on time.

In response to many of these comments, for purposes of this rule EPA has extended the deadline. The final rule specifies at § 144.87 (b) that the rule applies statewide on January 1, 2004 if the local ground water assessments for community water systems and non-transient non-community water systems under an EPA approved Drinking Water Source Assessment Program are not completed. The extra time accounts for possible modifications to State programs submitted during EPA's review process. Further, the later date provides additional time for affected owners and operators to be informed of the application of this rule to their facilities and come into compliance. In addition, States can apply to the EPA for an extension to up to one year if they have made reasonable progress in completing their assessments for ground water protection areas. States must apply to EPA for an extension by June 1, 2003.

EPA retained statewide implementation, if a State Drinking Water Source Assessment Program is not completed because this is the only preventive approach practical given that it would be difficult to ascertain which

areas are most vulnerable if assessments are not completed. At the same time, EPA believes that all States will complete assessments for community water systems and non-transient non-community water systems before the January 1, 2004 deadline. There are approximately 170,000 public water systems for which States must develop source water assessments. Of those systems 40,820 are community water systems, 18,660 are non-transient non-community water systems and 87,870 are transient water systems. Thus, for the purposes of this rule, States must complete less than half of their assessments by this deadline and EPA believes that if a State does encounter difficulties it will prioritize its efforts and complete the community and non-transient non-community systems first. In addition, many States have received early approval of their programs and have begun their assessments ahead of schedule. In addition, a review of the State's Source Water Assessment Plans, which have been submitted to EPA for approval, indicate that many States intend to use their EPA approved Well Head Protection Program as the basis for developing their ground water protection areas. Approved Well Head Protection Programs include two of the three steps required to complete the ground water portion of a State Source Water Protection Plan. States that adopt their existing Well Head Protection Plan will have met the majority of the requirements for the ground water portion of the State Drinking Water Source Assessment and Protection Program. Therefore, if a State fails to complete all local assessments for ground water protection areas by January 1, 2004 (or January 1, 2005 with an extension) the rule will apply statewide for existing motor vehicle waste disposal wells.

##### **2. Sensitive Ground Water Areas Not Delineated on Time**

Both Primacy States and EPA Regions (for DI States) must delineate sensitive ground water areas by January 1, 2004. If States have not delineated their other "sensitive ground water areas" by that time, the regulations affecting motor vehicle waste disposal wells will apply statewide permanently by January 1, 2007. Existing motor vehicle waste disposal wells (in delineated sensitive ground water areas but outside of ground water protection areas) in Primacy States and EPA Regions (for DI States) must achieve compliance by January 1, 2007.

The January 1, 2004 date was chosen as a deadline for delineation of sensitive ground water areas to allow States time

to delineate these areas. EPA is confident that States will delineate sensitive ground water areas well before the January 2004 deadline. States can delineate sensitive ground water areas based on existing information such as State specific geologic and hydro-geologic maps. An assessment and inventory of contaminant sources within these areas will not have to be completed. In addition, States already have knowledge of these areas, and some States and EPA Regions (for direct implementation States) have already mapped sensitive ground water areas. Phased implementation will allow resources to be spent on sensitive ground water areas once the rule has already been implemented in ground water protection areas. However, States may apply to the EPA for an extension for up to one year to complete delineations for sensitive ground water areas if they are making reasonable progress in identifying these areas. States must apply for this extension by June 1, 2003. EPA will consider and decide the merits of the extension requests separately for completing assessments for ground water protection areas and for identifying other sensitive areas.

### 3. Assessments for Ground Water Protection Areas Completed Before UIC Primacy Revisions Are Approved

EPA believes that, based on the current status of States in developing State Drinking Water Source Assessment and Protection Programs and EPA in approving them, most programs will likely be approved by the end of 1999. Once approved, States will begin to complete their local assessments for ground water protection areas. It is likely, therefore, that some local assessments will be completed before certain Primacy States have had an opportunity to revise and receive EPA approval for their updated Class V UIC programs. In this case, owners and operators of existing motor vehicle waste disposal wells (located in a ground water protection area with a completed assessment) have one year from the date of EPA's approval of their State's Class V UIC program revision to comply with the new Class V requirements.

#### H. Pre-Closure Notification

The proposal, at § 144.88 (table), required owners or operators of large-capacity cesspools and motor vehicle waste disposal wells in States where the UIC Program is directly implemented by EPA to notify the Program Director of their intent to close their well at least 30 days prior to closure.

These requirements were proposed for DI programs based on the need to track high-priority well closures in EPA-administered programs. In the interest of flexibility, the proposal did not require State-administered UIC programs to adopt the same pre-closure notification. EPA solicited comments on the merits and potential impacts on Primacy States of requiring pre-closure notification.

The majority of commentors were in favor of requiring pre-closure notification in Primacy States, as this would allow for a more accurate inventory, and would provide a mechanism for State oversight of well closures.

For these reasons, EPA has decided to extend pre-closure notification for large-capacity cesspools and motor vehicle waste disposal wells to Primacy States in all areas covered by the rule at § 144.88 (table).

#### I. Exclusion Criteria for Cesspools and Septic Systems

EPA proposed to revise the exclusion criteria for septic systems and cesspools receiving solely sanitary wastes to exclude from the UIC regulations both septic systems and cesspools with the capacity to serve fewer than 20 persons per day and those serving individual or single family residences. The proposal eliminated the distinction between residential and non-residential systems and set the exclusion criteria at systems with the capacity to serve fewer than 20 people per day. While most commentors supported the 1995 proposal, the vast majority of people addressing this issue added that the 20 persons-per-day threshold should be changed. These commentors, many of which were States, generally favored a criterion that was based on waste flow rate or septic tank size. However, it was not clear to EPA if any of the alternative criteria that were suggested could be adopted on a national level without significantly disrupting many State programs nor that such a change was needed to improve USDW protection.

To shed further light on this issue, the 1998 proposal asked for further comments on whether the criterion needed to be changed to fix a significant problem. In general, the comments received were similar to those received for the 1995 proposal. The majority of the commentors suggested EPA use a flow rate (ranging from less than 400 to 20,000 gallons per day). Some commentors thought the 20 persons criterion was too low and should be set at 25. Still others suggested that there is less waste per person from industrial/commercial sites than residential sites.

EPA recognizes that the current criterion as written in § 144.1(g) has weaknesses. However, because no commentor recommended an alternative criterion that would not disrupt existing State programs or that was necessary to ensure better protection of USDWs, today's rule retains the criterion at § 144.1(g). Under this criterion, non-residential cesspools, septic systems or similar waste disposal systems are covered under the UIC program if they are used solely for the disposal of sanitary waste, and have the capacity to serve 20 or more persons a day. Residential large-capacity cesspools and septic systems are covered by the UIC program if they are used by a multiple dwelling, community or regional system for the injection of waste.

EPA will re-evaluate this issue in the context of a future Class V rulemaking, using information collected during the Class V Study of all wells not covered by today's rule, including septic systems.

#### J. Other Amendments

EPA is finalizing other minor revisions originally proposed in the August 28, 1995 notice, in order to provide a complete and coherent picture of all Class V UIC changes being contemplated. These revisions address (1) a few definitions in §§ 144.3 and 146.3, and (2) the classification of radioactive waste disposal wells in §§ 144.6 and 146.5. In addition, certain existing Class V requirements are being reiterated in or moved to the plain-English version of the consolidated Class V regulations in 40 CFR 144 Subpart G.

##### 1. Categories of Class V Wells

In the 1995 and 1998 Class V proposals, EPA solicited comment on a proposed reclassification scheme for all Class V well subtypes. Some commentors objected to the new classification scheme. Additionally, preliminary information gathered as a part of the Class V study indicates the proposed categorization scheme may not appropriately group the Class V subtypes and could be a source of confusion to Class V owners and operators in future rules.

In response to the public comment, EPA will retain the current Class V well type definitions found in § 146.5 (e) with one exception. The current list of Class V wells at § 146.5 does not include a definition of Motor Vehicle Waste Disposal wells. Therefore, EPA is finalizing the definition for Motor Vehicle Waste Disposal wells at §§ 146.5 (e)(16) and 144.81 as it was proposed.

## 2. Sections 144.3 and 146.3—Definitions

The regulation adds new definitions for “cesspool,” “drywell,” “improved sinkhole,” “point of injection,” “sanitary waste,” “septic system,” and “subsurface fluid distribution system.” The rule also revises the existing definitions for “well” and “well injection.”

An “improved sinkhole” is defined as a type of injection well regulated under the UIC program. Today’s definition codifies EPA’s interpretation that the intentional disposal of waste waters in natural depressions, open fractures, and crevices (such as those commonly associated with the cooling of lava flows or weathering of limestone) fits within the statutory definition of underground injection. A “subsurface fluid distribution system,” which is a term used in the new definition of “septic system,” is defined with a standard engineering description. The definition of “well” has been revised to clarify that a “well” includes improved sinkholes and subsurface fluid distribution systems.

The definition of “well injection” has been revised to eliminate a redundancy and simply state that well injection means the subsurface emplacement of fluids through a well.

## 3. Sections 144.6 and 146.5—Classification of Wells

The regulation revises § 144.6(a) and § 146.5(a) by adding a paragraph (3) to move Class V radioactive waste disposal wells injecting below all USDWs into the Class I category. Such Class V wells, in fact, are similar to Class I wells in terms of their design, the nature of fluids that they inject, and their potential to endanger USDWs. In particular, like Class I wells, such radioactive waste injection wells inject below all USDWs and warrant the same level of control.

The Agency believes that all of these wells are located in Texas, which already regulates them as Class I wells. Existing Class V radioactive waste disposal wells, therefore, should not be subject to any additional regulatory requirements. However, the Agency believes that Class I requirements related to permitting, construction, operating, monitoring, reporting, mechanical integrity testing, area of review, and plugging and abandonment are needed to prevent any new radioactive waste disposal wells from endangering USDWs. The Agency, thus, has reclassified Class V wells that inject radioactive waste below the lowermost USDW as Class I wells and subject them to the full set of existing Class I

requirements. This approach is administratively simpler and more straightforward than keeping the wells in the Class V universe and developing identical requirements under the Class V program.

EPA wishes to clarify that this reclassification of Class V radioactive waste disposal wells does not affect the disposal of naturally occurring radioactive material (NORM) in Class II wells as part of oil and gas field operations. The injection of fluids associated with oil and natural gas production, including such fluids containing NORM, would continue to be regulated under existing Class II UIC requirements or under applicable regulations prescribed by the Primacy State agency.

## 4. Existing Regulations Being Reiterated or Replaced in 40 CFR Part 144, Subpart G

The existing description of the five classes of injection wells in § 144.6 has been reiterated in § 144.80 in the new Subpart G. Similarly, the existing prohibition of fluid movement in § 144.12 has been reiterated in § 144.82.

The description of when Class V injection is authorized by rule in § 144.24 has been deleted and moved to §§ 144.84 in the new Subpart G.

## 5. Part 145—State UIC Program Requirements

The Agency has amended § 145.11 to be consistent with the changes in 40 CFR Part 144. These amendments insert a set of new requirements in § 144.88 that State programs must have the legal authority to implement.

These amendments to Part 145 are technical corrections to incorporate the changes to 40 CFR Part 144. The corrections include a reference to the new section and a redesignation of paragraphs to accommodate the new references.

## 6. Sections 144.23 and 146.10—Class IV Wells

The August 28, 1995 notice proposed to add a new § 144.23(c) to clearly rule authorize Class IV wells used to inject treated water into the formation from which it came if such injection is approved by EPA or a State as part of a RCRA or CERCLA remediation program. The 1995 notice also proposed to add a new paragraph in § 146.10(b) to reiterate that owners or operators of Class IV wells in EPA-administered programs have to close their well in accordance with the existing requirements in § 144.23(b) prior to abandonment. Both of these proposals, which are described in more detail in

the preamble of the 1995 proposal (see 60 FR 44665), are not related to Class V wells and thus were discussed but not revisited in the 1998 proposed revisions to the Class V regulations (63 FR 40587).

In general, public commentors supported the August 28, 1995 proposal as it related to section 144.23. Therefore, EPA is finalizing new language at § 144.23 as proposed in 1995 as part of this rulemaking action.

No commentors addressed the proposed addition in § 146.10(b) presumably because it simply reiterates the existing Class IV well closure requirement in § 144.23(b) for the sake of clarity. Accordingly, EPA is finalizing the new § 146.10(b) as proposed in 1995.

## V. Cost of the Rule

The Agency has prepared an Economic Analysis (EA) of today’s final rule to assess its costs. This section summarizes the burden of the final rule on Class V large-capacity cesspool and motor vehicle waste disposal well owner/operators and the methods employed to calculate this impact. The complete EA has been placed in the rule-making docket.

### A. Methodology Overview

EPA’s methodology for estimating the national cost of the rule is largely identical to the methodology used to analyze the July 1998 proposed rule. The analysis was modified in certain respects, however, to reflect changes in the rule in response to public comment on the proposal and to make use of data that was not available at the time of proposal. On May 21, 1999, EPA published a Notice of Data Availability or “NODA” (64 FR 27741) to describe and request public comment on the additional data obtained by the Agency since its publication of the proposed rule in July 1998.

The following discussion summarizes the revisions to the Economic Analysis based data obtained after the proposal. The complete analytic methodology, along with the detailed results of the analysis, are presented in the Economic Analysis document available in the public docket.

### 1. Revised Estimates of the Numbers of Affected Wells

The Economic Analysis reflects new estimates of the number of wells that will be affected by today’s rule. These estimates are based on information collected as a part of the “Class V Study” described in Section III.C of this preamble and the notice of data availability published on May 21, 1999. The Class V Study provides the latest

State inventory information (*i.e.*, on the documented and estimated number of wells of motor vehicle wells and large-capacity cesspools) reported to EPA in questionnaires completed by staff in the States and EPA Regions. The Economic Analysis uses the Class V Study to determine the national universe of potentially affected Class V UIC wells. (In contrast, the prior analysis developed national estimates of the number of waste disposal wells by employing a number of assumptions, because survey data on the number of wells were not available.)

EPA received comments on the use of this data from five commentors. These commentors expressed concern that there are uncertainties associated with these data. EPA understands the concerns of the commentors and recognizes that a certain amount of uncertainty exists with this (and any other) facility inventory data. However, EPA believes that the new data presented in the NODA represents the best available information to use in the economic analysis supporting today's rule. EPA further believes that using this new information to estimate the economic impact of the Class V requirements is a vast improvement over the economic analysis for the proposed rule. In that analysis, EPA had to make numerous assumptions, relating to Class V well inventories, to estimate the economic burden of the new requirements.

The Class V study also collected State Class V regulations. EPA reviewed State regulations to determine which States had requirements that were at least as stringent as today's final rule. The analysis then excluded wells in States with UIC programs that are at least as stringent as today's final rule. For example, the analysis excludes large-capacity cesspools in States that already have banned them in their regulations.

To calculate the number of motor vehicle waste disposal wells that fall within ground water protection areas, EPA assumed that States will delineate ground water protection areas by using areas of one-half mile radius around water supply wells for ground water community water systems (G-CWS) and of one-quarter mile radius around water supply wells for ground water non-transient non-community water systems (G-NTNCWS). This methodology is consistent with the 1998 economic analysis. However in the Economic Analysis for the final rule, EPA used data from State Drinking Water Source Assessment and Protection Programs, when available, to refine actual G-CWS and G-NTNCWS radii on a State by State basis. These State Drinking Water

Source Assessment and Protection Programs were described in the NODA of May 21, 1999.

The Economic Analysis estimates the number of wells assumed to fall within sensitive ground water areas based on State-specific data regarding the presence of certain conditions that might be considered sensitive for purposes of ground water protection (*e.g.*, sole source aquifers, shallow unconsolidated aquifers, karst, fractured bedrock). The NODA requested public comment on applying the rule to wells in sensitive ground water areas.

As a result of the new data and estimation methodology and the modified scope of the rule as applied to motor vehicle waste disposal wells in sensitive ground water areas, the number of wells estimated to be affected by the rule has changed relative to EPA's estimates for the proposed rule. The number of affected large-capacity cesspools is now estimated at 2,723 (compared to 55 estimated for the proposed rule). The number of affected motor vehicle wells is now estimated at to range from 3,035 to 9,903 (compared to 7,045 estimated for the proposed rule). This range is based on the amount of land area that States may delineate as sensitive.

## 2. Phase-in Assumptions

The Economic Analysis has been revised to more realistically model when the rule will take effect. This is important primarily due to one aspect of how the final rule differs relative to the proposed rule. Specifically, with regard to motor vehicle wells, the final rule applies not only to wells in ground water protection areas (as did the proposed rule), but also to wells in sensitive ground water areas. However, the rule requires wells in ground water protection areas to come into compliance with the rule no later than 2004, whereas motor vehicle wells in sensitive ground water areas must come into compliance over a slightly longer period (by 2007). Moreover, even for large-capacity cesspools and for motor vehicle wells in ground water protection areas, it is unrealistic to assume that all wells will come into compliance in the same year.

To accurately evaluate the costs of the rule, the Economic Analysis has been revised to recognize the different time periods over which wells are expected to come into compliance. For motor vehicle wells in ground water protection areas, this period is 2001–2004. For motor vehicle wells in sensitive ground water areas, this period is 2004–2007. For large-capacity cesspools, this period is 2001–2005.

## 3. Higher Closure Costs

EPA has increased the estimated well closure costs associated with the final rule based on data obtained from several sources following the publication of the proposed Class V rule (63 FR 40586, July 29, 1998). Specifically, EPA obtained additional well closure cost data from EPA Region II, as well as cost data submitted by the Penske Truck Leasing Company (Penske). Each of these sources was discussed in the NODA of May 21, 1999. EPA also considered the cost data submitted by the American Trucking Association (ATA) during the public comment period for the proposed rule.

- *EPA Region II Data.* EPA obtained well closure cost data from EPA Region II during a staff visit in March 1999 to review case files on Class V wells. This visit provided additional information on Class V motor vehicle wells found within the State of New York. Among the information obtained were a limited number of detailed cost breakdowns used as cost data references for the revised economic analysis.

- *Penske Truck Leasing Company (Penske).* The Penske data included closure cost information for seven Class V well closures, as well as a summary of closure costs for fifteen wells closed by Penske. EPA used two of the seven well closure reports that provided an itemized list of well closure costs. In addition, the EPA used the general summary sheet to obtain information on the costs associated with various alternative motor vehicle wastewater management strategies. The Penske information reflected, in particular, the costs of well closure activities at larger truck maintenance and washing facilities, rather than smaller automobile service facilities.

- *American Trucking Association (ATA).* During the public comment period on the proposed rule, the ATA submitted a set of comments presenting a variety of actual well closure costs and approximate cost ranges (*e.g.*, minimum and maximum costs). The appendices included summaries with non-itemized closure costs for 24 different motor vehicle facilities (including some of the same facilities described in the Penske data) as well as other summaries presenting partially-itemized closure costs and costs associated with alternative wastewater disposal strategies (*e.g.*, connection to a sanitary sewer). Most of the well closure cost data provided by the ATA were aggregated in a manner that made it difficult to determine costs for specific well closure activities. Consequently, EPA relied primarily on certain



summary sheets included in the appendices.

EPA compared these data to the costs used in the economic analysis for the proposed rule. Specific cost elements (e.g., soil waste disposal fees) used in the 1998 economic analysis were compared to the corresponding cost elements found in cost data from the three sources. Average costs were used when various cost estimates were available. Some cost elements could not be compared to cost elements reported in other sources (ATA, Penske, EPA Region II) because the other sources presented only aggregated costs or they categorized costs in a different manner.

As part of the comparison, EPA also considered the scope and context of the new data. For example, larger facilities that perform truck maintenance and truck washing may generate a larger amount of wastewater, with different wastewater constituents, than most smaller automobile service facilities; therefore, the facilities might have a larger or different type of Class V well. In addition, more extensive contamination might occur at such sites, requiring more extensive well closure activities which in turn led to higher well closure costs. Well closures and clean ups performed voluntarily by the facility owner (e.g., to obtain an optional no-liability verification letter from the State environmental authority) or as a result of a notice of violation or EPA Administrative Order could be more extensive than would be required by the new Class V rule.

EPA's cost comparison and analysis of the new data indicated that EPA's closure cost estimates in the proposal were generally reasonable or even overestimated the cost of some activities. However, the comparison also revealed that EPA had underestimated the fees that contractors, consultants, and/or engineers would charge for their well closure services. Specifically, EPA's prior estimates did not take into account the fact that motor vehicle facilities sometimes hire consultants and/or engineers to lead the well closure efforts. EPA therefore increased the estimate for the average cost of closing a motor vehicle waste disposal well to account for hiring consultants and engineers. However, because the rule does not require a facility to hire a consultant or engineer to close a well, EPA estimates that only 10 percent of the motor vehicle facilities will do so. The new estimates therefore reflect a prorated average cost of hiring consultants and/or engineers. EPA has concluded that no other adjustments to the unit costs used in the economic analysis are necessary.

#### *B. National Cost of the Rule*

The Agency estimates the total annual cost of the rule ranges from \$18.1 million to \$40.3 million. This estimate assumes that all large-capacity cesspools will be affected by the rule, but that only those motor vehicle wells located in ground water protection areas or sensitive ground water areas will be affected. This assumption is consistent with EPA's belief that all States will complete their assessments of ground water protection areas by January 2004 and will delineate sensitive ground water areas by January 2004. In the event that a State fails to delineate ground water protection areas, or elects not to delineate sensitive ground water areas, then the provisions of the rule would apply to all motor vehicle wells in the State permanently. However, the Agency believes it unlikely that the rule will be applied to motor vehicles State-wide in any State because most State Drinking Water Assessment Programs will be approved by EPA by the end of the year and all States appear to be on track to meet the milestones established in the new Class V requirements for ground water protection areas. Further, States can receive a one year extension if they are making reasonable progress in completing assessments for ground water protection areas.

#### *C. Facility Impacts*

The final rule results in an estimated average annual cost per facility to owners/operators of motor vehicle waste disposal wells of between \$4,450 and \$11,000 depending on the waste streams generated by the facility. The estimated average annual cost per facility to owner/operators of large-capacity cesspools is \$3,626. These per facility costs are amortized over 20 years at a discount rate of 7 percent.

EPA estimates that companies in at least 18 SIC codes will be affected by the final rule. EPA estimates the total number of facilities affected by the rule to be 5,300 for motor vehicle wells and 2700 for large-capacity cesspools. Approximately 98 percent of the affected facilities are classified as small businesses under the Small Business Administration regulations. See Section VI.D for a discussion of impacts to small businesses. For the final rule, EPA estimates that 2,600 of the entities (or 50 percent the total businesses affected) will have to incur a cost of greater than one percent of sales to comply with the proposed rule. An estimated 945 businesses will incur costs greater than three percent of sales under the final rule. The cost per facility includes the full cost owners and operators would

incur to implement BMPs such as recycling and waste reduction. A recent survey of motor vehicle related facilities indicated that a majority of facilities are already implementing some BMPs. Therefore, EPA believes that the number of facilities affected at greater than three percent of sales might be overestimated.

The rule also affects about 380 small government entities. EPA did not estimate the total number of governments that are affected by the final rule. Governments are expected to incur a cost of less than one percent of their net revenue.

#### **VI. Effect on States With Primacy**

According to regulations at 40 CFR 145.32, Primacy States would have 270 days from the effective date of the final rule to submit to EPA documents demonstrating that proper legal authority and regulations exist to administer and enforce the new requirements for Class V cesspools and motor vehicle waste disposal wells. Depending on the existing State program and authorities, these documents could include a modified program description that outlines the structure, coverage, and processes of the State's Class V UIC program. Revisions to State UIC Programs needed to incorporate the new requirements will be subject to public notice and comment requirements.

Reasonable efforts by States to implement and enforce the new requirements as part of their ongoing programs should not be overly burdensome, because the new requirements are primarily directed toward well owners/operators, not UIC program authorities. For example, the ban on new motor vehicle waste disposal wells is self-implementing by owners or operators, with no new reporting, inspection, or other administrative requirements for Primacy States. However, there may be an increased burden on States that choose to use the waiver option for existing motor vehicle wells to review the permit application and appropriate conditions for each facility or facilities wishing to keep its motor vehicle waste disposal well open. Based on this review, States have to either deny the application or develop and enforce permit requirements to make sure the well does not endanger USDWs. Secondly, Primacy States may delineate other sensitive ground water areas or choose to implement the rule statewide. States will submit a plan to the EPA with their primacy program revision. The plan will outline how they intend to conduct the delineations.



## VII. Administrative Requirements

### A. Executive Order 12866

Under Executive Order 12866, [58 FR 51,735 (October 4, 1993)] the Agency must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may: (1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is a "significant regulatory action." As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations are documented in the public record.

### B. Children's Health Protection and Executive Order 13045

Executive Order 13045, entitled "Protection of Children from Environmental Health Risks and Safety Risks" (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This final rule is not subject to the Executive Order because it is not economically significant according to the criteria for economic significance in E.O. 12866. Further, the Agency does not have reason to believe the rule concerns environmental health or safety risks that may have a disproportionate effect on children. The environmental

health and safety issues addressed by this rule are the protection of public drinking water sources used by all sectors of the population.

### C. Paperwork Reduction Act

The Office of Management and Budget (OMB) has approved the information collection requirements contained in this rule under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*) and has assigned OMB control number 2040-0214.

Several types of information will be collected under the rule. Owners and operators of large-capacity cesspools (which are banned under today's rule) will be required to submit a pre-closure notification to the State or EPA indicating their intention to close their large-capacity cesspool. Similarly, some owners and operators of Class V motor vehicle waste disposal wells located within a ground water protection areas or State-delineated sensitive ground water areas will close and must also submit a pre-closure notification. The pre-closure notifications will enable EPA and States to ensure that wells are closed properly.

Other motor vehicle well owners and operators that receive waivers will be required to obtain a permit and to meet the monitoring requirements as specified in the permit. While EPA has not specified the frequency of monitoring, for the purposes of the ICR, annual sludge monitoring and quarterly injectate monitoring for the first three years after the permit is received and annual monitoring thereafter was assumed in order to calculate information collection costs. The permit application and monitoring reports will enable the States and EPA to evaluate whether continued operation of the well will pose an unacceptable threat to ground water.

At the State level, primacy States will need to prepare revised primacy applications to demonstrate their readiness to implement the rule. Also, States and EPA (for direct implementation States), are likely to delineate sensitive ground water areas within their State including karst, fractured bedrock, shallow unconsolidated aquifers, and sole source aquifers. This process will entail preparing a plan outlining the proposed methods for delineation that will be submitted with the States primacy program revision. The delineations will enable States and EPA to determine which motor vehicle waste disposal wells are affected by today's final rule.

EPA believes the information discussed above is essential to protecting each State's ground water

drinking supplies. EPA uses information on all classes of injection wells, including Class V wells, to track the performance of the UIC Program toward meeting its goal of protecting USDWs from potential threats due to injected wastes. Responses to the request for information will be mandatory in accordance with provisions in 40 CFR 144.83 (Underground Injection Control). Pre-closure notifications allow UIC Programs to track the success of the Program in closing those wells that pose the greatest threat to USDWs. The Agency uses the information supplied in permit applications to track the location and numbers of Class V wells. Monitoring data provide information on the types of wastes injected and will be used to determine whether or not injection should be allowed to continue and under what conditions. State Drinking Water Source Assessment and Protection Programs may use information on permitted or closed Class V injection wells if they choose to update their contaminant source inventories.

Any Class V injection well operator may request that information submitted be kept confidential, as provided in 40 CFR 144.5 (Confidentiality of Information). All confidential information is treated in accordance with the provisions of 40 CFR part 2 (Public Information). Respondents to the information collection requirements may claim confidentiality by stamping the words "confidential business information" on each page containing such information. However, the Agency will not consider the following information confidential:

- The name and address of any facility with a Class V waste disposal well.
- Information regarding the existence, absence, or level of contaminants in drinking water.

If no claim of confidentiality is made at the time of submission, EPA may make the information available to the public without further notice.

EPA has estimated the burden associated with the specific record keeping and reporting requirements (summarized above) of the rule in an accompanying Information Collection Request (ICR). Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and

disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

The ICR estimates the hourly burden and cost to owners and operators of affected Class V wells for complying with the requirements. EPA estimates that, over the three years covered by the information collection request, the number of owners and operators of Class V injection wells responding to the information collection request will be 1,463. The average annual hours per response for notification of well closure is 4.5 hours at a cost of \$115 for large-capacity cesspools and 7 hours at a cost of \$621 for motor vehicle waste disposal wells. The notification is a one time only requirement. There are no operation and maintenance costs associated with well closure. For owners and operators of motor vehicle waste disposal wells who seek a waiver and obtain a permit, the average annual hours per permit application is 58 hours at a cost of \$1,358. The costs for quarterly injectate monitoring and annual sludge monitoring, and annual reporting is \$2,057 per facility per year.

Over the three years covered by the ICR, a total of 1,192 Class V wells (including motor vehicle waste disposal wells and large-capacity cesspools) may be closed. In addition, 271 operators of motor vehicle waste disposal wells are expected to seek a waiver from the ban and apply for permits requiring them to monitor their injectate and sludge.

The total respondent burden associated for the 3-year period is estimated to be 63,024 hours (an average of 21,008 hours per year), and the present value cost will be \$2,680,674 (an average of \$954,075 per year). The average annual burden per owner/operator is 75.5 hours; the cost per response is \$5,203. The average annual burden per State is 984 hours; their cost per response is \$26,143.

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR Chapter 15. EPA is amending the table in Part 9 of currently approved ICR control numbers issued by OMB for various regulations to list the information requirements contained in this final rule.

*D. Regulatory Flexibility Act (RFA), as Amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 et seq.*

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, a small entity is defined as: (1) A small business based on the definition of small business found in the Small Business Act (SBA); (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

In accordance with section 603 of the RFA, EPA prepared an initial regulatory flexibility analysis (IRFA) for the proposed rule and convened a Small Business Advocacy Review Panel to obtain advice and recommendations of representatives of the regulated small entities in accordance with section 609(b) of the RFA (see 63 FR 40586). A detailed discussion of the Panel's advice and recommendations is found in the Panel Report (W-98-05 A). A summary of the Panel's recommendations is presented at 63 FR 40590.

As required by section 604 of the RFA, EPA also prepared a final regulatory flexibility analysis (FRFA) for today's final rule. The FRFA addresses the issues raised by public comments on the IRFA, which was part of the proposal of this rule. The FRFA is available for review in the docket and is summarized below.

The final rule adds new requirements for two categories of endangering Class V wells to ensure protection of underground sources of drinking water. In particular, it affects the owners and operators of existing motor vehicle waste disposal wells in ground water protection areas and other sensitive ground water areas and owners and operators of new motor vehicle waste disposal wells and large-capacity cesspools nationwide (both types of Class V wells are discussed in the FRFA). As discussed in Section V.B, EPA estimates that approximately 5,300

motor vehicle wells and approximately 2,700 cesspools would be subject to the final rule.

EPA's analysis to determine the impacts on small businesses uses the same methodology as the economic analysis for all businesses, as discussed in Section V, except the SBA size thresholds for small businesses were used to determine the number of small businesses affected. The SBA size thresholds were used in conjunction with 1992 census data to determine the percentage of small businesses in each of the 18 SIC categories believed to have affected wells. Approximately 4,800 small businesses and 380 small governments are affected by the motor vehicle well provisions of the final rule. EPA has limited data on the type of entities that use large-capacity cesspools and therefore has not estimated the number of small entities affected. EPA did not receive any public comment on the initial regulatory flexibility analysis.

The rule bans existing motor vehicle waste disposal wells in ground water protection areas and other sensitive ground water areas, but allows them to continue to operate if they seek a waiver from the ban and obtain a permit. The final rule also bans new motor vehicle waste disposal wells and new and existing large-capacity cesspools nationwide. EPA estimates that about 50 percent of the affected small entities may incur costs for closure or obtaining a permit that represent more than 1 percent of their sales (or revenue for small governments). EPA estimates that about 18 percent of the affected small entities may incur costs that represent more than 3 percent of their sales (or revenue for small governments). Based on these estimates, EPA has determined that the final rule might have a significant economic impact on a substantial number of small entities.

To reduce the impact of the final rule on small entities, EPA has attempted to keep permitting, reporting, and other administrative requirements to a minimum to provide regulatory relief to small entities while protecting drinking water supplies. In fact, the final rule incorporates many of the consensus recommendations offered by the Small Business Advocacy Review Panel that was convened by EPA to obtain advice and recommendations from representatives of affected small entities in accordance with Section 609(b) of the Act. In particular, the Panel recommended that the rule offer alternatives to the ban of Class V motor vehicle waste disposal wells. Therefore, the final rule allows owners/operators of existing motor vehicle waste disposal wells to seek a waiver from the ban and

obtain a permit. EPA also adopted the Panel recommendations that UIC Program Directors be allowed to extend the time to comply with the new requirements from 90 days to up to a year in certain situations. The final rule allows owners and operators one year to comply with the new requirements, and allows the UIC Program Director to extend the deadline for up to an additional year if necessary to install treatment or hook up to a sewer system.

In the proposed rule, one option and one alternative were proposed for existing motor vehicle waste disposal wells: a ban; and rule authorization with additional requirements. The ban was not selected because, while it would offer the greatest protection to USDWs, the Agency recognized that there are some facilities that might be able to meet MCLs at the point of injection and could therefore seek a waiver from the ban and obtain a permit that allows them to continue using their well without endangering USDWs. The Agency did not choose the rule authorization option because it would not insure adequate protection of USDWs.

Other changes made in response to Panel recommendations include the following: The preamble clarifies that Class V wells at motor vehicle service facilities may not be subject to the rule if motor vehicle waste fluids are prevented from entering the well; the supporting economic analysis has been revised to acknowledge and account for the cleanup requirements that may be triggered by the rule to close certain Class V wells and to account for the likely overlap between areas where Class V wells are located and source water protection areas; owners and operators of existing motor vehicle waste disposal well can take steps to convert their well to another Class V well type; and the regulatory language has been expanded to identify ways in which well owners or operators can learn whether they are in a source water protection area.

EPA is requiring owner/operators of large-capacity cesspools and facilities with motor vehicle waste disposal wells that will close their well as a result of the rule to submit a single notification of their intent to close their wells. The collection of the pre-closure notification is necessary to track high-priority closures. Some motor vehicle waste disposal wells may choose to remain in operation based on a one-time waiver application from the ban to obtain a permit. The ICR assumes that States may require as a permit condition the collection of quarterly injectate monitoring and annual sludge

monitoring data during the first three years, in order to provide information for owners and operators and the State on the injection of potentially threatening wastes. Individual States will determine whether less frequent collection may be appropriate for wells in their States. The majority of the information collection, reporting and recordkeeping required by this rule can be done by technical and clerical staff.

As required by section 212 of SBREFA, EPA also is preparing a small entity compliance guide to help small entities comply with this rule. Small entities can obtain a copy of the compliance guide by contacting the Safe Drinking Water Hotline at (800) 426-4791, their State or EPA Regional UIC Director or the EPA website (<http://www.epa.gov/ogwdw/>). The small entity compliance guide will be available in April 2000.

#### *E. Executive Order 13132: Federalism*

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government." Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts State law unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

If EPA complies by consulting, Executive Order 13132 requires EPA to provide to the Office of Management and Budget (OMB), in a separately identified section of the preamble to the rule, a federalism summary impact statement (FSIS). The FSIS must include a description of the extent of EPA's prior consultation with State and local officials, a summary of the nature of

their concerns and the agency's position supporting the need to issue the regulation, and a statement of the extent to which the concerns of State and local officials have been met. Also, effective November 2, 1999, when EPA transmits a draft final rule with federalism implications to OMB for review pursuant to Executive Order 12866, EPA must include a certification from the agency's Federalism Official stating that EPA has met the requirements of Executive Order 13132 in a meaningful and timely manner.

This final rule will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. Thus, the requirements of section 6 of the Executive Order do not apply to this rule. This rule establishes requirements for owners and operators of certain Class V UIC wells. There will also be some costs to the implementing agency to administer this rule, however, EPA does not believe the incremental cost to administer the new requirements in the rule will be substantial. States and local governments may own or operate a well subject to this rule. However, the number of wells owned by States and local governments are limited and therefore there will not be substantial direct effects.

Although section 6 of Executive Order 13132 does not apply to this rule, EPA did consult with State and local officials throughout the development of this rule. EPA consulted with States during numerous Ground Water Protection Council meetings, stakeholder meetings held prior to rule proposal (63 FR 40590), and the National Drinking Water Advisory Council UIC/ Source Water working group meetings. States primarily were concerned with a provision in the proposed rule stated the requirements would be applied statewide if States failed to complete their Drinking Water Source Assessment and Protection Programs. The final rule allows States to apply to EPA for up to a one year extension for to complete their assessments (and sensitive ground water area delineations) if they have made reasonable progress. State comments on the proposed rule are addressed in the response to comment document.

#### *F. Executive Order 13084: Consultation and Coordination With Indian Tribal Governments*

Under Executive Order 13084, EPA may not issue a regulation that is not

required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the tribal governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires EPA to provide to the Office of Management and Budget, in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian tribal governments "to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities."

Today's rule does not significantly or uniquely affect the communities of Indian tribal governments because there are ten documented wells on tribal lands, and the majority of those are owned by private businesses not by Tribal governments. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule. However, EPA did conduct outreach to Indian tribal governments during the comment period for the proposed rule. EPA Regions distributed information to tribal representatives through; presentations at water association meetings; distributing the proposed rule to Indian health services; direct mailings and notifying national tribal organizations.

#### G. Unfunded Mandates

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable

number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements. EPA consulted with State and local governments, as described in section VI.E. and tribes as discussed in section VI.F.

EPA has determined that this rule does not contain a Federal mandate that may result in expenditures of \$100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any one year. Specifically, the annualized costs of this rule to the regulated community are estimated to range from \$18.1 million to \$40.3 million. The annualized cost estimates for State governments are \$254,000. Thus, today's rule is not subject to the requirements of section 202 and 205 of the UMRA.

EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small local governments. Because EPA estimates that any small local government entities affected by this final rule will incur a cost of less than one percent of their net revenue, EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small local governments.

#### H. National Technology Transfer and Advancement Act

As noted in the proposed rule, section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Pubic Law No. 104-113 section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities

unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

As explained in the proposal, this rule does not involve technical standards. Therefore, EPA did not consider the use of any voluntary consensus standards, and no commentator suggested otherwise or suggested any application.

#### I. Environmental Justice

Pursuant to Executive Order 12898 (59 FR 7629, February 16, 1994), the Agency has considered environmental justice related issues with regard to the potential impacts of this action on the environmental and health conditions in low-income and minority communities. The Agency believes that today's rule provides equal public health protection to communities irrespective of their socio-economic condition and demographic make-up.

#### J. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective April 5, 2000.

#### List of Subjects

##### 40 CFR Part 9

Environmental protection, Reporting and recordkeeping requirements.

##### 40 CFR Part 144

Administrative practice and procedure, Hazardous waste, Indians-lands, Water supply.

**40 CFR Part 145**

Confidential business information, Indians-lands, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Water supply.

**40 CFR Part 146**

Hazardous waste, Indians-lands, Reporting and recordkeeping requirements, Water supply.

Dated: November 23, 1999.

**Carol M. Browner,**  
Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is amended as follows:

**PART 9—AMENDED**

1. The authority citation for part 9 continues to read as follows:

**Authority:** 7 U.S.C. 135 et seq., 136–136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601–2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 et seq., 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–1, 300j–2, 300j–3, 300j–4, 300j–9, 1857 et seq., 6901–6992k, 7401–7671q, 7542, 9601–9657, 11023, 11048.

2. In § 9.1 the table is amended under the indicated heading by adding new entries in numerical order to read as follows:

**§ 9.1 OMB approvals under the Paperwork Reduction Act.**

40 CFR citation	OMB control No.
<b>Underground Injection Control Program</b>	
144.79–144.89 .....	2040–0214
145.23 .....	2040–0214

**PART 144—UNDERGROUND INJECTION CONTROL PROGRAM**

3. The authority citation for part 144 continues to read as follows:

**Authority:** Safe Drinking Water Act, 42 U.S.C. 300f et seq.; Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq.

4. Section 144.1 is amended by adding a new paragraph (f)(1)(vii),

revising paragraphs (g)(1) introductory text, (g)(1)(iii), and (g)(2)(v) to read as follows:

**§ 144.1 Purpose and scope of part 144.**

(f) \* \* \*  
(1) \* \* \*  
(vii) Subpart G of this part sets forth requirements for owners and operators of Class V injection wells.

(g) \* \* \*  
(1) *Specific inclusions.* The following wells are included among those types of injection activities which are covered by the UIC regulations. (This list is not intended to be exclusive but is for clarification only.)

(iii) Any well used by generators of hazardous waste, or by owners or operators of hazardous waste management facilities, to dispose of fluids containing hazardous waste. This includes the disposal of hazardous waste into what would otherwise be septic systems and cesspools, regardless of their capacity.

(2) \* \* \*  
(v) Any dug hole, drilled hole, or bored shaft which is not used for the subsurface emplacement of fluids.

5. Section 144.3 is amended by adding new definitions in alphabetical order for “Cesspool,” “Drywell,” “Improved sinkhole,” “Point of injection,” “Sanitary waste,” “Septic system,” and “Subsurface fluid distribution system,” and by revising the definitions of “Well” and “Well injection” to read as follows:

**§ 144.3 Definitions.**

*Cesspool* means a “drywell” that receives untreated sanitary waste containing human excreta, and which sometimes has an open bottom and/or perforated sides.

*Drywell* means a well, other than an improved sinkhole or subsurface fluid distribution system, completed above the water table so that its bottom and sides are typically dry except when receiving fluids.

*Improved sinkhole* means a naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purpose of directing and emplacing fluids into the subsurface.

*Point of injection* means the last accessible sampling point prior to waste

fluids being released into the subsurface environment through a Class V injection well. For example, the point of injection of a Class V septic system might be the distribution box—the last accessible sampling point before the waste fluids drain into the underlying soils. For a dry well, it is likely to be the well bore itself.

*Sanitary waste* means liquid or solid wastes originating solely from humans and human activities, such as wastes collected from toilets, showers, wash basins, sinks used for cleaning domestic areas, sinks used for food preparation, clothes washing operations, and sinks or washing machines where food and beverage serving dishes, glasses, and utensils are cleaned. Sources of these wastes may include single or multiple residences, hotels and motels, restaurants, bunkhouses, schools, ranger stations, crew quarters, guard stations, campgrounds, picnic grounds, day-use recreation areas, other commercial facilities, and industrial facilities provided the waste is not mixed with industrial waste.

*Septic system* means a “well” that is used to emplace sanitary waste below the surface and is typically comprised of a septic tank and subsurface fluid distribution system or disposal system.

*Subsurface fluid distribution system* means an assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground.

*Well* means: A bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system.

*Well injection* means the subsurface emplacement of fluids through a well.

6. Section 144.6 is amended by adding a new paragraph (a)(3) and revising paragraph (e) to read as follows:

**§ 144.6 Classification of wells.**

(a) \* \* \*  
(3) Radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore.

(e) Class V. Injection wells not included in Class I, II, III, or IV. Specific types of Class V injection wells are described in § 144.81.

7. Section 144.23 is amended by adding a new paragraph (c) to read as follows:

**§ 144.23 Class IV Wells**

\* \* \* \* \*

(c) Notwithstanding the requirements of paragraphs (a) and (b) of this section, injection wells used to inject contaminated ground water that has been treated and is being injected into the same formation from which it was drawn are authorized by rule for the life of the well if such subsurface emplacement of fluids is approved by EPA, or a State, pursuant to provisions for cleanup of releases under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601–9675, or pursuant to requirements and provisions under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901–6992k.

8. Section 144.24 is amended by revising paragraph (a) to read as follows:

**§ 144.24 Class V wells.**

(a) A Class V injection well is authorized by rule, subject to the conditions in § 144.84

\* \* \* \* \*

9. Section 144.26 is amended by revising paragraph (b)(1)(iii)(B) and removing paragraph (e).

**§ 144.26 Inventory Requirements.**

\* \* \* \* \*

(b) \* \* \*

(1) \* \* \*

(iii) \* \* \*

(B) Radioactive waste disposal wells that are not Class I wells (40 CFR 146.5 (e)(11))

\* \* \* \* \*

10. Subpart G is added to read as follows:

**Subpart G—Requirements for Owners and Operators of Class V Injection Wells**

Sec.

144.79 General.

**Definition of Class V Injection Wells**

144.80 What is a Class V injection well?

144.81 Does this subpart apply to me?

**Requirements for All Class V Injection Wells**

144.82 What must I do to protect underground sources of drinking water?

144.83 Do I need to notify anyone about my Class V injection well?

144.84 Do I need to get a permit?

**Additional Requirements for Class V Large-Capacity Cesspools and Motor Vehicle Waste Disposal Wells**

144.85 Do these additional requirements apply to me?

144.86 What are the definitions I need to know?

144.87 How does the identification of ground water protection areas and other sensitive areas affect me?

144.88 What are the additional requirements?

144.89 How do I close my Class V injection well?

**Subpart G—Requirements for Owners and Operators of Class V Injection Wells**

**§ 144.79 General.**

This subpart tells you what requirements apply if you own or operate a Class V injection well. You may also be required to follow additional requirements listed in the rest of this part. Where they may apply, these other requirements are referenced rather than repeated. The requirements described in this subpart and elsewhere in this part are to protect underground sources of drinking water and are part of the Underground Injection Control (UIC) Program established under the Safe Drinking Water Act. This subpart is written in a special format to make it easier to understand the regulatory requirements. Like other EPA regulations, it establishes enforceable legal requirements.

**Definition of Class V Injection Wells**

**§ 144.80 What is a Class V injection well?**

As described in § 144.6, injection wells are classified as follows:

(a) *Class I.* (1) Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within one-quarter mile of the well bore, an underground source of drinking water.

(2) Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water;

(3) Radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore.

(b) *Class II.* Wells which inject fluids:

(1) Which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.

(2) For enhanced recovery of oil or natural gas; and

(3) For storage of hydrocarbons which are liquid at standard temperature and pressure.

(c) *Class III.* Wells which inject fluids for extraction of minerals including:

(1) Mining of sulfur by the Frasch process;

(2) *In situ* production of uranium or other metals; this category includes only in situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V.

(3) Solution mining of salts or potash.

(d) *Class IV.* (1) Wells used by generators of hazardous waste or of radioactive waste, by owners and operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste into a formation which within one quarter (1/4) mile of the well contains an underground source of drinking water.

(2) Wells used by generators of hazardous waste or of radioactive waste, by owners and operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste above a formation which within one quarter (1/4) mile of the well contains an underground source of drinking water.

(3) Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to dispose of hazardous waste, which cannot be classified under paragraph (a)(1) or (d)(1) and (2) of this section (e.g., wells used to dispose of hazardous waste into or above a formation which contains an aquifer which has been exempted pursuant to 40 CFR 146.04).

(e) *Class V.* Injection wells not included in Class I, II, III or IV. Typically, Class V wells are shallow wells used to place a variety of fluids directly below the land surface. However, if the fluids you place in the ground qualify as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), your well is either a Class I or Class IV well, not a Class V well. Examples of Class V wells are described in § 144.81.

**§ 144.81 Does this subpart apply to me?**

This subpart applies to you if you own or operate a Class V well, for example:

(1) Air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling in a heat pump;

(2) Large capacity cesspools including multiple dwelling, community or regional cesspools, or other devices that receive sanitary wastes, containing human excreta, which have an open bottom and sometimes perforated sides. The UIC requirements do not apply to single family residential cesspools nor to non-residential cesspools which receive solely sanitary waste and have the capacity to serve fewer than 20 persons a day.

(3) Cooling water return flow wells used to inject water previously used for cooling;

(4) Drainage wells used to drain surface fluids, primarily storm runoff, into a subsurface formation;

(5) Dry wells used for the injection of wastes into a subsurface formation;

(6) Recharge wells used to replenish the water in an aquifer;

(7) Salt water intrusion barrier wells used to inject water into a fresh aquifer to prevent the intrusion of salt water into the fresh water;

(8) Sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines whether what is injected is a radioactive waste or not.

(9) Septic system wells used to inject the waste or effluent from a multiple dwelling, business establishment, community or regional business establishment septic tank. The UIC requirements do not apply to single family residential septic system wells, nor to non-residential septic system wells which are used solely for the disposal of sanitary waste and have the capacity to serve fewer than 20 persons a day.

(10) Subsidence control wells (not used for the purpose of oil or natural gas production) used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with the overdraft of fresh water;

(11) Injection wells associated with the recovery of geothermal energy for heating, aquaculture and production of electric power;

(12) Wells used for solution mining of conventional mines such as stopes leaching;

(13) Wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts;

(14) Injection wells used in experimental technologies.

(15) Injection wells used for in situ recovery of lignite, coal, tar sands, and oil shale.

(16) Motor vehicle waste disposal wells that receive or have received fluids from vehicular repair or maintenance activities, such as an auto body repair shop, automotive repair shop, new and used car dealership, specialty repair shop (e.g., transmission and muffler repair shop), or any facility that does any vehicular repair work. Fluids disposed in these wells may contain organic and inorganic chemicals in concentrations that exceed the maximum contaminant levels (MCLs) established by the primary drinking water regulations (see 40 CFR part 142). These fluids also may include waste petroleum products and may contain contaminants, such as heavy metals and volatile organic compounds, which pose risks to human health.

#### **Requirements for All Class V Injection Wells**

##### **§ 144.82 What must I do to protect underground sources of drinking water?**

If you own or operate any type of Class V well, the regulations below require that you cannot allow movement of fluid into USDWs that might cause endangerment, you must comply with other Federal UIC requirements in 40 CFR parts 144 through 147, and you must comply with any other measures required by your State or EPA Regional Office UIC Program to protect USDWs, and you must properly close your well when you are through using it. You also must submit basic information about your well, as described in § 144.83.

(a) *Prohibition of fluid movement.* (1) As described in § 144.12(a), your injection activity cannot allow the movement of fluid containing any contaminant into USDWs, if the presence of that contaminant may cause a violation of the primary drinking water standards under 40 CFR part 141, other health based standards, or may otherwise adversely affect the health of persons. This prohibition applies to your well construction, operation, maintenance, conversion, plugging, closure, or any other injection activity.

(2) If the Director of the UIC Program in your State or EPA Region learns that your injection activity may endanger USDWs, he or she may require you to close your well, require you to get a permit, or require other actions listed in § 144.12(c), (d), or (e).

(b) *Closure requirements.* You must close the well in a manner that complies with the above prohibition of fluid movement. Also, you must dispose or otherwise manage any soil, gravel, sludge, liquids, or other materials removed from or adjacent to your well in accordance with all applicable Federal, State, and local regulations and requirements.

(c) *Other requirements in Parts 144 through 147.* Beyond this subpart, you are subject to other UIC Program requirements in 40 CFR parts 144 through 147. While most of the relevant requirements are repeated or referenced in this subpart for convenience, you need to read these other parts to understand the entire UIC Program.

(d) *Other State or EPA requirements.* 40 CFR parts 144 through 147 define minimum Federal UIC requirements. EPA Regional Offices administering the UIC Program have the flexibility to establish additional or more stringent requirements based on the authorities in parts 144 through 147, if believed to be necessary to protect USDWs. States can have their own authorities to establish additional or more stringent requirements if needed to protect USDWs. You must comply with these additional requirements, if any exist in your area. Contact the UIC Program Director in your State or EPA Region to learn more.

##### **§ 144.83 Do I need to notify anyone about my Class V injection well?**

Yes, you need to provide basic "inventory information" about your well to the UIC Director, if you haven't already. You also need to provide any additional information that your UIC Program Director requests in accordance with the provisions of the UIC regulations.

(a) *Inventory requirements.* Unless you know you have already satisfied the inventory requirements in § 144.26 that were in effect prior to the issuance of this Subpart G, you must give your UIC Program Director certain information about yourself and your injection operation.

**Note:** This information is requested on national form "Inventory of Injection Wells," OMB No. 2040-0042.

(1) The requirements differ depending on your well status and location, as described in the following table:



If your well is . . .	And you're in one of these locations ("Primacy" States, where the State runs the Class V UIC Program): Alabama, Arkansas, Commonwealth of Northern Mariana Islands, Connecticut, Delaware, Florida, Georgia, Guam, Idaho, Illinois, Kansas, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Puerto Rico, Rhode Island, South Carolina, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, or Wyoming	Or you're in one of these locations ("Direct Implementation" or DI Programs, where EPA runs the Class V UIC Program): Alaska, American Samoa, Arizona, California, Colorado, Hawaii, Indiana, Iowa, Kentucky, Michigan, Minnesota, Montana, New York, Pennsylvania, South Dakota, Tennessee, Virginia, Virgin Islands, Washington, DC, or any Indian Country
(i) New (prior to construction of your well) .....	. . . then you must contact your State UIC Program to determine what you must submit and by when..	. . . then you must submit the inventory information described in (a)(2) of this section prior to constructing your well.
(ii) Existing (construction underway or completed).	. . . then you must contact your State UIC Program to determine what you must submit and by when..	. . . then you must cease injection and submit the inventory information. You may resume injection 90 days after you submit the information unless the UIC Program Director notifies you that injection may not resume or may resume sooner.

(2) If your well is in a Primacy State or a DI Program State, here is the information you must submit:

(i) No matter what type of Class V well you own or operate, you must submit at least the following information for each Class V well: facility name and location; name and address of legal contact; ownership of facility; nature and type of injection well(s); and operating status of injection well(s).

(ii) *Additional information.* If you are in a Direct Implementation State and you own or operate a well listed below you must also provide the information listed in paragraph (a) (2) (iii) as follows:

(A) Sand or other backfill wells (40 CFR 144.81(8) and 146.5(e)(8) of this chapter);

(B) Geothermal energy recovery wells (40 CFR 144.81(11) and 146.5 (e)(12) of this chapter);

(C) Brine return flow wells (40 CFR 144.81(13) and 146.5 (e)(14) of this chapter);

(D) Wells used in experimental technology (40 CFR 144.81(14) and 146.5 (e)(15) of this chapter);

(E) Municipal and industrial disposal wells other than Class I; and

(F) Any other Class V wells at the discretion of the Regional Administrator.

(iii) You must provide a list of all wells owned or operated along with the following information for each well. (A single description of wells at a single facility with substantially the same characteristics is acceptable).

(A) Location of each well or project given by Township, Range, Section, and Quarter-Section, or by latitude and longitude to the nearest second,

according to the conventional practice in your State;

(B) Date of completion of each well;

(C) Identification and depth of the underground formation(s) into which each well is injecting;

(D) Total depth of each well;

(E) Construction narrative and schematic (both plan view and cross-sectional drawings);

(F) Nature of the injected fluids;

(G) Average and maximum injection pressure at the wellhead;

(H) Average and maximum injection rate; and

(I) Date of the last inspection.

(3) Regardless of whether your well is in a Primacy State or DI Program you are responsible for knowing about, understanding, and complying with these inventory requirements.

(b) *Information in response to requests.* If you are in one of the DI Programs listed in the table above, the UIC Program Director may require you to submit other information believed necessary to protect underground sources of drinking water.

(1) Such information requirements may include, but are not limited to:

(i) Perform ground water monitoring and periodically submit your monitoring results;

(ii) Analyze the fluids you inject and periodically submit the results of your analyses;

(iii) Describe the geologic layers through which and into which you are injecting; and

(iv) Conduct other analyses and submit other information, if needed to protect underground sources of drinking water.

(2) If the Director requires this other information, he or she will request it from you in writing, along with a brief

statement on why the information is required. This written notification also will tell you when to submit the information.

(3) You are prohibited from using your injection well if you fail to comply with the written request within the time frame specified. You can start injecting again only if you receive a permit.

#### **§ 144.84 Do I need to get a permit?**

No, unless you fall within an exception described below:

(a) *General authorization by rule.*

With certain exceptions listed in paragraph (b) of this section, your Class V injection activity is "authorized by rule," meaning you have to comply with all the requirements of this subpart and the rest of the UIC Program but you don't have to get an individual permit. Well authorization expires once you have properly closed your well, as described in § 144.82(b).

(b) *Circumstances in Which Permits or other Actions are Required.* If you fit into one of the categories listed below, your Class V well is no longer authorized by rule. This means that you have to either get a permit or close your injection well. You can find out by contacting the UIC Program Director in your State or EPA Region if this is the case. Subpart D of this Part tells you how to apply for a permit and describes other aspects of the permitting process. Subpart E of this Part outlines some of the requirements that apply to you if you get a permit.

(1) You fail to comply with the prohibition of fluid movement standard in § 144.12(a) and described in § 144.82(a) (in which case, you have to get a permit, close your well, and/or comply with other conditions



determined by the UIC Program Director in your State or EPA Region);

(2) You own or operate a Class V large-capacity cesspool (in which case, you must close your well as specified in the additional requirements below) or a Class V motor vehicle waste disposal well in a ground water protection area or sensitive ground water area (in which case, you must either close your well or get a permit as specified in the additional requirements in this subsection). New motor vehicle waste disposal wells and new cesspools are prohibited as of April 5, 2000;

(3) You are specifically required by the UIC Program Director in your State or EPA Region to get a permit (in which case, rule authorization expires upon the effective date of the permit issued, or you are prohibited from injecting into your well upon:

(i) Failure to submit a permit application in a timely manner as specified in a notice from the Director; or

(ii) Upon the effective date of permit denial);

(4) You have failed to submit inventory information to your UIC Program Director, as described in § 144.83(a) (in which case, you are prohibited from injecting into your well until you comply with the inventory requirements); or

(5) If you are in a DI State and you received a request from your UIC Program Director for additional information under § 144.83(b), and have failed to comply with the request in a timely manner (in which case, you are prohibited from injecting into your well until you get a permit).

#### **Additional Requirements for Class V Large-Capacity Cesspools and Motor Vehicle Waste Disposal Wells**

##### **§ 144.85 Do these additional requirements apply to me?**

(a) *Large-Capacity Cesspools.* The additional requirements apply to all new and existing large-capacity cesspools regardless of their location. If you are using a septic system for these type of wastes you are not subject to the additional requirements in this subpart.

(b) *Motor Vehicle Waste Disposal Wells Existing on April 5, 2000.* If you have a Class V motor vehicle waste disposal well these requirements apply to you if your well is located in a ground water protection area or other sensitive ground water area that is identified by your State or EPA Region. If your State or EPA Region fails to identify ground water protection areas and/or other sensitive ground water areas these requirements apply to all Class V motor vehicle wells in the State.

(c) *New Motor Vehicle Waste Disposal Wells.* The additional requirements apply to all new motor vehicle waste disposal wells as of April 5, 2000.

##### **§ 144.86 What are the definitions I need to know?**

(a) *State Drinking Water Source Assessment and Protection Program.* This is a new approach to protecting drinking water sources, specified in the 1996 Amendments to the Safe Drinking Water Act at Section 1453. States must prepare and submit for EPA approval a program that sets out how States will conduct local assessments, including: delineating the boundaries of areas providing source waters for public water systems; identifying significant potential sources of contaminants in such areas; and determining the susceptibility of public water systems in the delineated areas to the inventoried sources of contamination.

(b) *Complete Local Source Water Assessment for Ground Water Protection Areas.* When EPA has approved a State's Drinking Water Source Assessment and Protection Program, States will begin to conduct local assessments for each public water system in their State. For the purposes of this rule, local assessments for community water systems and non-transient non-community systems are complete when four requirements are met: First, a State must delineate the boundaries of the assessment area for community and non-transient non-community water systems. Second, the State must identify significant potential sources of contamination in these delineated areas. Third, the State must "determine the susceptibility of community and non-transient non-community water systems in the delineated area to such contaminants." Lastly, each State will develop its own plan for making the completed assessments available to the public.

(c) *Ground Water Protection Area.* A ground water protection area is a geographic area near and/or surrounding community and non-transient non-community water systems that use ground water as a source of drinking water. These areas receive priority for the protection of drinking water supplies and States are required to delineate and assess these areas under section 1453 of the Safe Drinking Water Act. The additional requirements in § 144.88 apply to you if your Class V motor vehicle waste disposal well is in a ground water protection area for either a community water system or a non-transient non-community water system, in many States, these areas will be the same as Wellhead Protection Areas that

have been or will be delineated as defined in section 1428 of the SDWA.

(d) *Community Water System.* A community water system is a public water system that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

(e) *Non-transient Non-community Water System.* A public water system that is not a community water system and that regularly serves at least 25 of the same people over six months a year. These may include systems that provide water to schools, day care centers, government/military installations, manufacturers, hospitals or nursing homes, office buildings, and other facilities.

(f) *Delineation.* Once a State's Drinking Water Source Assessment and Protection Program is approved, the States will begin delineating their local assessment areas. Delineation is the first step in the assessment process in which the boundaries of ground water protection areas are identified.

(g) *Other Sensitive Ground Water Areas.* States may also identify other areas in the State in addition to ground water protection areas that are critical to protecting underground sources of drinking water from contamination. These other sensitive ground water areas may include areas such as areas overlying sole-source aquifers; highly productive aquifers supplying private wells; continuous and highly productive aquifers at points distant from public water supply wells; areas where water supply aquifers are recharged; karst aquifers that discharge to surface reservoirs serving as public water supplies; vulnerable or sensitive hydrogeologic settings, such as glacial outwash deposits, eolian sands, and fractured volcanic rock; and areas of special concern selected based on a combination of factors, such as hydrogeologic sensitivity, depth to ground water, significance as a drinking water source, and prevailing land-use practices.

##### **§ 144.87 How does the identification of ground water protection areas and other sensitive ground water areas affect me?**

(a) You are subject to these new requirements if you own or operate an existing motor vehicle well and you are located in a ground water protection area or an other sensitive ground water area. If your State or EPA Region fails to identify these areas within the specified time frames these requirements apply to all existing motor vehicle waste disposal wells within your State.

(b) *Ground Water Protection Areas.* (1) For the purpose of this subpart, States are required to complete all local source water assessments for ground water protection areas by January 1, 2004. Once a local assessment for a ground water protection area is complete every existing motor vehicle waste disposal well owner in that ground water protection area has one year to close the well or receive a permit. If a State fails to complete all local assessments for ground water protection areas by January 1, 2004, the following may occur:

(i) The new requirements in this subpart will apply to all existing motor vehicle waste disposal wells in the State and owners and operators of motor vehicle waste disposal wells located outside of completed assessments for ground water protection areas must close their well or receive a permit by January 1, 2005.

(ii) EPA may grant a State an extension for up to one year from the January 1, 2004 deadline if the State is making reasonable progress in completing the source water assessments for ground water protection areas. States must apply for the extension by June 1, 2003. If a State fails to complete the assessments for the remaining ground water protection areas by the extended date the rule requirements will apply to all motor vehicle waste disposal wells in the State and owners and operators of motor vehicle waste disposal wells located outside of ground water protection areas with completed assessments must close their well or receive a permit by January 1, 2006.

(2) The UIC Program Director may extend the compliance deadline for specific motor vehicle waste disposal wells for up to one year if the most efficient compliance option for the well is connection to a sanitary sewer or installation of new treatment technology.

(c) *Other Sensitive Ground Water Areas.* States may also delineate other sensitive ground water areas by January 1, 2004. Existing motor vehicle waste disposal well owners and operators within other sensitive ground water areas have until January 1, 2007 to receive a permit or close the well. If a State or EPA Region fails to identify these additional sensitive ground water areas by January 1, 2004, the new requirements of this rule will apply to all motor vehicle waste disposal wells in the State effective January 1, 2007 unless they are subject to a different compliance date pursuant to paragraph

(b) of this section. Again, EPA may extend the January 1, 2004 deadline for up to one year for States to delineate other sensitive ground water areas if the State is making reasonable progress in identifying the sensitive areas. States must apply for this extension by June 1, 2003. If a State has been granted an extension, existing motor vehicle waste disposal well owners and operators within the sensitive ground water areas have until January 1, 2008 to close the well or receive a permit, unless they are subject to a different compliance date pursuant to paragraph (b) of this section. If a State has been granted an extension and fails to delineate sensitive areas by the extended date, the rule requirements will apply to all motor vehicle waste disposal wells in the State and owners and operators have until January 1, 2008 to close the well or receive a permit, unless they are subject to a different compliance date pursuant to paragraph (b) of this section.

(d) *How to Find Out if Your Well is in a Ground Water Protection Area or Sensitive Ground Water Area.* States are required to make their local source water assessments widely available to the public through a variety of methods after the assessments are complete. You can find out if your Class V well is in a ground water protection area by contacting the State agency responsible for the State Drinking Water Source Assessment and Protection Program in your area. You may call the Safe Drinking Water Hotline at 1-800-426-4791 to find out who to call in your State for this information. The State office responsible for implementing the Drinking Water Source Assessment and Protection Program makes the final and official determination of boundaries for ground water protection areas. Because States that choose to delineate other sensitive ground water areas are also required to make the information on these areas accessible to the public, they may do so in a manner similar to the process used by the States in publicizing the EPA approved Drinking Water Source Assessment and Protection Program. You can find out if your Class V well is in an other sensitive ground water area by contacting the State or Federal agency responsible for the Underground Injection Control Program. You may call the Safe Drinking Water Hotline at 1-800-426-4791 to find out who to call for information.

(e) *Changes in the Status of the EPA Approved State Drinking Water Source Assessment and Protection Program.* After January 1, 2004 your State may

assess a ground water protection area for ground water supplying a new community water system or a new non-transient non-community water system that includes your Class V injection well. Also, your State may officially re-delineate the boundaries of a previously delineated ground water protection area to include additional areas that includes your motor vehicle waste disposal well. This would make the additional regulations apply to you if your motor vehicle waste disposal well is in such an area. The additional regulations start applying to you one year after the State completes the local assessment for the ground water protection area for the new drinking water system or the new re-delineated area. The UIC Program Director responsible for your area may extend this deadline for up to one year if the most efficient compliance option for the well is connection to a sanitary sewer or installation of new treatment technology.

(f) *What Happens if My State Doesn't Designate Other Sensitive Ground Water Areas?* If your State or EPA Region elects not to delineate the additional sensitive ground water areas, the additional regulations apply to you regardless of the location of your well by January 1, 2007, or January 2008 if an extension has been granted as explained in paragraph (c) of this section, except for wells in ground water protection areas which are subject to different compliance deadlines explained in paragraph (b) of this section.

(h) *Application of Requirements Outside of Ground Water Protection Areas and Sensitive Ground Water Areas.* EPA expects and strongly encourages States to use existing authorities in the UIC program to take whatever measures are needed to ensure Class V wells are not endangering USDWs in any other areas outside of delineated ground water protection areas and sensitive ground water areas. Such measures could include, if believed to be necessary by a UIC Program Director, applying the additional requirements below to other areas and/or other types of Class V wells. Therefore, the Director may apply the additional requirements to you, even if you are not located in the areas listed in paragraph (a) of this section.

#### **§ 144.88 What are the additional requirements?**

The additional requirements are specified in the following tables:

(a) TABLE 1.—ADDITIONAL REQUIREMENTS FOR LARGE-CAPACITY CESSPOOLS STATEWIDE

[See § 144.85 to determine if these additional requirements apply to you]

Well Status	Requirement	Deadline
If your cesspool is. . .	Then you. . .	By. . .
(1) Existing (operational or under construction by April 5, 2000).	(i) Must close the well .....	April 5, 2000.
	(ii) Must notify the UIC Program Director (both Primacy States and Direct Implementation States) of your intent to close the well. Note: This information is requested on national form "Preclosure Notification for Closure of Injection Wells,". Are prohibited .....	At least 30 days prior to closure.
(2) New or converted (construction not started before April 5, 2000).		April 5, 2000.

(b) TABLE 2.—ADDITIONAL REQUIREMENTS FOR MOTOR VEHICLE WASTE DISPOSAL WELLS

[See § 144.85 to determine if these additional requirements apply to you]

Well status	Requirement	Deadline
If your motor vehicle waste disposal well is	Then. . .	By. . .
(1) Existing (operational or under construction by April 5, 2000).	(i) If your well is in a ground water protection area, you must close the well or obtain a permit.	Within 1 year of the completion of your local source water assessment; your UIC Program Director may extend the closure deadline, but not the permit application deadline, for up to one year if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technology.
	(ii) If your well is in an other sensitive ground water area, you must close the well or obtain a permit.	By January 1, 2007; your UIC Program Director may extend the closure deadline, but not the permit application deadline, for up to one year if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technology.
	(iii) If you plan to seek a waiver from the ban and apply for a permit, you must meet MCLs at the point of injection while your permit application is under review, if you choose to keep operating your well.	The date you submit your permit application.
	(iv) If you receive a permit, you must comply with all permit conditions, if you choose to keep operating your well, including requirements to meet MCLs and other health based standards at the point of injection, follow best management practices, and monitor your injectate and sludge quality.	The date(s) specified in your permit.
	(v) If your well is in a State which has not completed all their local assessments by January 1, 2004 or by the extended date if your State has obtained an extension as described in 144.87, and you are outside an area with a completed assessment you must close the well or obtain a permit.	January 1, 2005 unless your State obtains an extension as described in 144.87 (b) in which case your deadline is January 1, 2006; your UIC Program Director may extend the closure deadline, but not the permit application deadline, for up to one year if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technology.
	(vi) If your well is in a State that has not delineated other sensitive ground water areas by January 1, 2004 and you are outside of an area with a completed assessment you must close the well or obtain a permit regardless of your location.	January 1, 2007 unless your State obtains an extension as described in 144.87(c) in which case your deadline is January 2008.

(B) TABLE 2.—ADDITIONAL REQUIREMENTS FOR MOTOR VEHICLE WASTE DISPOSAL WELLS—Continued

[See § 144.85 to determine if these additional requirements apply to you]

Well status	Requirement	Deadline
If your motor vehicle waste disposal well is	Then. . .	By. . .
	(vii) If you plan to close your well, you must notify the UIC Program Director of your intent to close the well (this includes closing your well prior to conversion). Note: This information is requested on national form "Preclosure Notification for Closure of Injection Wells".	At least 30 days prior to closure.
(2) New or converted (construction not started before April 5, 2000).	Are prohibited .....	April 5, 2000.

**§ 144.89 How do I close my Class V injection well?**

The following describes the requirements for closing your Class V injection well.

(a) *Closure.* Prior to closing a Class V large-capacity cesspool or motor vehicle waste disposal well, you must plug or otherwise close the well in a manner that complies with the prohibition of fluid movement standard in § 144.12 and summarized in § 144.82(a). If the UIC Program Director in your State or EPA Region has any additional or more specific closure standards, you have to meet those standards too. You also must dispose or otherwise manage any soil, gravel, sludge, liquids, or other materials removed from or adjacent to your well in accordance with all applicable Federal, State, and local regulations and requirements, as in § 144.82(b).

(2) Closure does not mean that you need to cease operations at your facility, only that you need to close your well. A number of alternatives are available for disposing of waste fluids. Examples of alternatives that may be available to motor vehicle stations include: recycling and reusing wastewater as much as possible; collecting and recycling petroleum-based fluids, coolants, and battery acids drained from vehicles; washing parts in a self-contained, recirculating solvent sink, with spent solvents being recovered and replaced by the supplier; using absorbents to clean up minor leaks and spills, and placing the used materials in approved waste containers and disposing of them properly; using a wet vacuum or mop to pick up accumulated rain or snow melt, and if allowed, connecting floor drains to a municipal sewer system or holding tank, and if allowed, disposing of the holding tank contents through a publicly owned treatment works. You should check with the publicly owned treatment works you

might use to see if they would accept your wastes. Alternatives that may be available to owners and operators of a large-capacity cesspool include: conversion to a septic system; connection to sewer; and installation of an on-site treatment unit.

(b) *Conversions.* In limited cases, the UIC Director may authorize the conversion (reclassification) of a motor vehicle waste disposal well to another type of Class V well. Motor vehicle wells may only be converted if: all motor vehicle fluids are segregated by physical barriers and are not allowed to enter the well; and, injection of motor vehicle waste is unlikely based on a facility's compliance history and records showing proper waste disposal. The use of a semi-permanent plug as the means to segregate waste is not sufficient to convert a motor vehicle waste disposal well to another type of Class V well.

**PART 145—STATE UIC PROGRAM REQUIREMENTS**

11. The authority citation for part 145 continues to read as follows:

**Authority:** Safe Drinking Water Act, 42 U.S.C. 300f *et seq.*

**Subpart B—[Amended]**

12. Section 145.11 is amended by adding paragraph (a)(32) and by revising the first sentence of paragraph (b)(1) to read as follows:

**§ 145.11 Requirements for permitting.**

(a) \* \* \*

(32) Section 144.88—(What are the additional requirements?);

\* \* \* \* \*

(b)(1) States need not implement provisions identical to the provisions listed in paragraphs (a)(1) through (a)(32) of this section. \* \* \*

\* \* \* \* \*

**Subpart C—[Amended]**

13. Section 145.23, is revised by adding paragraph (f)(12) to read as follows:

**§ 145.23 Program description.**

\* \* \* \* \*

(f) \* \* \*

(12) *For Class V programs only.* A description of and a schedule for the State's plan to identify and delineate other sensitive ground water areas. States should consider geologic and hydrogeologic settings, ground water flow and occurrence, topographic and geographic features, depth to ground water, significance as a drinking water source, prevailing land use practices and any other existing information relating to the susceptibility of ground water to contamination from Class V injection wells when developing their plan. Within the schedule for the plan, States must commit to: completing all delineations of other sensitive ground water areas by no later than Jan. 1, 2004; making these delineation available to the public; implementing the Class V regulations, effective April 5, 2000, in these delineated areas by no later than January 1, 2007. Alternately, if a State chooses not to identify other sensitive ground water areas, the requirements for motor vehicle waste disposal wells would apply statewide by January 1, 2007.

**PART 146—UNDERGROUND INJECTION CONTROL PROGRAM: CRITERIA AND STANDARDS**

14. The authority citation for part 146 continues to read as follows:

**Authority:** Safe Drinking Water Act, 42 U.S.C. 300f *et seq.*; Resource Conservation and Recovery Act, 42 U.S.C. 6901 *et seq.*

15. Section 146.3 is amended by adding the following new definitions in alphabetical order: "Cesspool," "Drywell," "Improved sinkhole," "Point

of injection," "Sanitary waste," "Septic system," and "Subsurface fluid distribution system," and by revising the definitions of "Well" and "Well injection" to read as follows:

**§ 146.3 Definitions.**

\* \* \* \* \*

*Cesspool* means a "drywell" that receives untreated sanitary waste containing human excreta, and which sometimes has an open bottom and/or perforated sides.

\* \* \* \* \*

*Drywell* means a well, other than an improved sinkhole or subsurface fluid distribution system, completed above the water table so that its bottom and sides are typically dry except when receiving fluids.

\* \* \* \* \*

*Improved sinkhole* means a naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purpose of directing and emplacing fluids into the subsurface.

\* \* \* \* \*

*Point of injection for Class V wells* means the last accessible sampling point prior to waste fluids being released into the subsurface environment through a Class V injection well. For example, the point of injection of a Class V septic system might be the distribution box—the last accessible sampling point before the waste fluids drain into the underlying soils. For a dry well, it is likely to be the well bore itself.

\* \* \* \* \*

*Sanitary waste* means liquid or solid wastes originating solely from humans and human activities, such as wastes collected from toilets, showers, wash basins, sinks used for cleaning domestic areas, sinks used for food preparation, clothes washing operations, and sinks or washing machines where food and beverage serving dishes, glasses, and utensils are cleaned. Sources of these wastes may include single or multiple residences, hotels and motels, restaurants, bunkhouses, schools, ranger stations, crew quarters, guard stations, campgrounds, picnic grounds, day-use recreation areas, other commercial facilities, and industrial facilities

provided the waste is not mixed with industrial waste.

\* \* \* \* \*

*Septic system* means a "well" that is used to emplace sanitary waste below the surface and is typically comprised of a septic tank and subsurface fluid distribution system or disposal system.

\* \* \* \* \*

*Subsurface fluid distribution system* means an assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground.

\* \* \* \* \*

*Well* means: A bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system.

*Well injection* means the subsurface emplacement of fluids through a well.

\* \* \* \* \*

16. Section 146.5 is amended by adding a new paragraph (a)(3) and revising the first sentence of paragraph (e) introductory text to read as follows:

**§ 146.5 Classification of injection wells.**

\* \* \* \* \*

(a) \* \* \*

(3) Radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore.

\* \* \* \* \*

(e) *Class V*. Injection wells not included in Class I, II, III, or IV. Specific types of Class V injection wells are also described in 40 CFR 144.81. \* \* \*

\* \* \* \* \*

17. Section 146.10 is revised to read as follows:

**§ 146.10 Plugging and abandoning Class I, II, III, IV, and V wells.**

(a) Requirements for Class I, II and III wells. (1) Prior to abandoning Class I, II and III wells, the well shall be plugged with cement in a manner which will not allow the movement of fluids either into or between underground sources of drinking water. The Director may allow Class III wells to use other plugging materials if the Director is satisfied that such materials will prevent movement

of fluids into or between underground sources of drinking water.

(2) Placement of the cement plugs shall be accomplished by one of the following:

(i) The Balance method;

(ii) The Dump Bailer method;

(iii) The Two-Plug method; or

(iv) An alternative method approved by the Director, which will reliably provide a comparable level of protection to underground sources of drinking water.

(3) The well to be abandoned shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or by a comparable method prescribed by the Director, prior to the placement of the cement plug(s).

(4) The plugging and abandonment plan required in 40 CFR 144.51(o) and 144.52(a)(6) shall, in the case of a Class III project which underlies or is in an aquifer which has been exempted under § 146.04, also demonstrate adequate protection of USDWs. The Director shall prescribe aquifer cleanup and monitoring where he deems it necessary and feasible to insure adequate protection of USDWs.

(b) Requirements for Class IV wells. Prior to abandoning a Class IV well, the owner or operator shall close the well in accordance with 40 CFR 144.23(b).

(c) Requirements for Class V wells. (1) Prior to abandoning a Class V well, the owner or operator shall close the well in a manner that prevents the movement of fluid containing any contaminant into an underground source of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 141 or may otherwise adversely affect the health of persons. Closure requirements for motor vehicle waste disposal wells and large-capacity cesspools are reiterated at § 144.89.

(2) The owner or operator shall dispose of or otherwise manage any soil, gravel, sludge, liquids, or other materials removed from or adjacent to the well in accordance with all applicable Federal, State, and local regulations and requirements.

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BILLING CODE 6560-50-P



# **FACT SHEET**

## **CLASS V INJECTION WELLS**

**EPA Announces New Regulatory  
Requirements for Certain Class V Injection  
Wells**

**November 1999**

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## What is a Class V injection well?

Class V injection wells are typically shallow disposal systems that are used to place a variety of fluids below the land surface. Injection wells are regulated by EPA and the states through the Underground Injection Control (UIC) Program in order to protect underground sources of drinking water from contamination.

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## Why are Class V injection wells of concern?

Class V wells are a concern because they pose a risk to underground sources of drinking water. Eighty-nine percent of America's public water systems use ground water as a drinking water source.

EPA estimates that there are more than 600,000 Class V injection wells currently in the United States. Class V injection wells are located in every state, especially in unsewered areas where the population is also likely to depend on ground water for its drinking water source. There are many types of Class V wells including: motor vehicle waste disposal wells; large capacity cesspools; storm water drainage wells; aquifer remediation wells; and large capacity septic systems. The fluids released by certain types of these wells have a high potential to contain elevated concentrations of contaminants that may endanger drinking water.

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## Are Class V injection wells currently regulated?

Class V injection wells are currently regulated by the UIC program, under the authority of the Safe Drinking Water Act. Under the existing federal regulations, Class V injection wells are "authorized by rule" (40 CFR 144). This means that Class V injection wells do not require a permit if they do not endanger underground sources of drinking water and they comply with other UIC program requirements.

These program requirements include: 1) submitting basic information about Class V injection wells to EPA or the state primacy agency, and 2) constructing, operating, and closing Class V injection wells in a manner which protects underground sources of drinking water. EPA or a state primacy agency may ask for additional information or require a permit in order to ensure that ground water quality is adequately protected. Further, many UIC primacy state programs have additional prohibitions or permitting requirements for certain types of Class V injection wells.

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## What are the new regulatory requirements?

These new requirements protect public health and the environment by eliminating or reducing injection of wastes from large capacity cesspools and motor vehicle waste disposal wells.

### Large-capacity Cesspools

- New cesspools are prohibited nationwide as of April 2000.
- Existing cesspools will be phased out nationwide by April 2005.

#### Motor Vehicle Waste Disposal Wells

- New wells are prohibited nationwide as of April 2000.
- Existing wells in regulated areas will be phased out (details below), but owners and operators can seek a waiver and obtain a permit. Permits must set out minimum requirements including: 1) meeting Maximum Contaminant Levels (MCLs) and other health based standards at the point of injection, 2) monitoring for injectate and sludge, and 3) implementing best management practices, such as recycling and waste minimization.

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## **Where are existing motor vehicle waste disposal wells being regulated?**

The requirements for existing motor vehicle waste disposal wells are being linked with State Source Water Assessment Programs. States are conducting source water assessments as required by the 1996 Amendments to the Safe Drinking Water Act (SDWA). The Amendments require states to establish Source Water Assessment Programs that, when complete, will: 1) delineate areas in the state in which one or more public drinking water systems have sources of drinking water; and 2) identify, to the extent practical, the origins of regulated and certain unregulated contaminants in the delineated area to determine the susceptibility of drinking water systems to such contaminants.

The new requirements will apply in ground water protection areas, as identified by the state's assessment for community and non-transient non-community water systems that use ground water.

The requirements will also apply in other areas that states identify as sensitive ground water areas. These areas are critical to protecting existing and future drinking water sources because hydrogeologic conditions would allow contaminants to readily migrate to drinking water sources.

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## **What are the compliance schedules for owners and operators in ground water protection areas and other sensitive ground water areas?**

The new requirements for existing motor vehicle waste disposal wells will be phased-in over approximately seven years. The first wells to be affected will be those located in ground water protection areas.

#### Motor vehicle waste disposal wells in Ground Water Protection Areas

- Owners and operators in ground water protection areas must close their well or obtain a permit within one year of completion of the state's ground water protection assessment. States could grant a one year extension under certain conditions.
- States must complete the ground water protection assessments by January 1, 2004. If they do not, three things could occur:
  - < The rule would apply statewide, and owners and operators would have until January 1, 2005, to close their wells or obtain a permit.



- < States could apply to EPA for a one year extension to complete their assessments. Owners and operators would have one year from the completion of the ground water protection assessment to close their well or obtain a permit.
- < If states get an extension and fail to complete their assessments, the rule would apply statewide and owners and operators would have until January 1, 2006, to close their wells or obtain a permit.

#### Motor vehicle waste disposal wells in Other Sensitive Ground Water Areas

- States must designate other sensitive ground water areas by January 1, 2004. Owners and operators of existing wells in these sensitive ground water areas have until January 1, 2007, to comply with the requirements.
- If States do not designate sensitive ground water areas by January 1, 2004, three things could occur:
  - < The rule would apply statewide and owners and operators would have until January 1, 2007, to close their wells or obtain a permit.
  - < States could apply to EPA for a one year extension to complete the designation. Owners and operators in designated sensitive ground water areas would have until January 2008 to close their well or obtain a permit.
  - < If States get an extension and fail to complete their designation, the rule would then apply statewide and owners and operators would have until January 2008 to close their wells or obtain a permit.

## **How do I get more information?**

The *Revisions to the Underground Injection Control Regulations for Class V Injection Wells* were signed on November 23, 1999. The regulation will soon appear in the Federal Register, and will also be available on EPA's website at [www.epa.gov/safewater/uic.html#classv](http://www.epa.gov/safewater/uic.html#classv).

For more information, contact the Safe Drinking Water Hotline at 1-800-426-4791 (email: [hotline-sdwa@epamail.epa.gov](mailto:hotline-sdwa@epamail.epa.gov)) or Robyn Delehanty at (202) 260-1993 (email: [delehanty.robyn@epamail.epa.gov](mailto:delehanty.robyn@epamail.epa.gov)).

To find out information about your state's UIC and source water assessment program, call the Safe Drinking Water Hotline at 1-800-426-4791 to find out who to call in your state.

## **Appendix C**

### **Frequently Asked Questions**

*[Under review.]*



United States Environmental Protection Agency  
**Underground Injection Control**  
**Permit Application**  
*(Collected under the authority of the Safe Drinking  
 Water Act, Sections 1421, 1422, 40 CFR 144)*

## I. EPA ID Number

	T/A	C
U		

*Read Attached Instructions Before Starting  
 For Official Use Only*

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

## II. Owner Name and Address

Owner Name		
Street Address		Phone Number
City	State	ZIP CODE

## III. Operator Name and Address

Operator Name		
Street Address		Phone Number
City	State	ZIP CODE

## IV. Commercial Facility

<input type="checkbox"/> Yes
<input type="checkbox"/> No

## V. Ownership

<input type="checkbox"/> Private
<input type="checkbox"/> Federal
<input type="checkbox"/> Other

## VI. Legal Contact

<input type="checkbox"/> Owner
<input type="checkbox"/> Operator

## VII. SIC Codes

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## VIII. Well Status (Mark "x")

<input type="checkbox"/> A. Operating	Date Started mo day year	<input type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed

## IX. Type of Permit Requested (Mark "x" and specify if required)

<input type="checkbox"/> A. Individual	<input type="checkbox"/> B. Area	Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s)

## X. Class and Type of Well (see reverse)

A. Classes(es) (enter codes(s))	B. Type(s) (enter codes(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)

## XI. Location of Well(s) or Approximate Center of Field or Project

Latitude		Longitude		Township and Range									
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line

## XII. Indian Lands (Mark "x")

<input type="checkbox"/> Yes
<input type="checkbox"/> No

## XIII. Attachments

*(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)*  
 For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6)  
 as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with  
 your application.

## XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title (Type or Print)	B. Phone No. (Area Code and No.)
C. Signature	D. Date Signed

## Well Class and Type Codes

<b>Class I</b>	Wells used to inject waste below the deepest underground source of drinking water.
<b>Type "I"</b>	Nonhazardous industrial disposal well
<b>"M"</b>	Nonhazardous municipal disposal well
<b>"W"</b>	Hazardous waste disposal well injecting below USDWs
<b>"X"</b>	Other Class I wells (not included in Type "I," "M," or "W")
<b>Class II</b>	Oil and gas production and storage related injection wells.
<b>Type "D"</b>	Produced fluid disposal well
<b>"R"</b>	Enhanced recovery well
<b>"H"</b>	Hydrocarbon storage well (excluding natural gas)
<b>"X"</b>	Other Class II wells (not included in Type "D," "R," or "H")
<b>Class III</b>	Special process injection wells.
<b>Type "G"</b>	Solution mining well
<b>"S"</b>	Sulfur mining well by Frasch process
<b>"U"</b>	Uranium mining well (excluding solution mining of conventional mines)
<b>"X"</b>	Other Class III wells (not included in Type "G," "S," or "U")
<b>Other Classes</b>	Wells not included in classes above.
	Class V wells which may be permitted under §144.12
	Wells not currently classified as Class I, II, III, or V.

## Attachments to Permit Application

<b>Class</b>	<b>Attachments</b>
<b>I new well</b>	A, B, C, D, F, H — S, U
<b>existing</b>	A, B, C, D, F, H — U
<b>II new well</b>	A, B, C, E, G, H, M, Q, R; optional — I, J, K, O, P, U
<b>existing</b>	A, E, G, H, M, Q, R — U; optional — J, K, O, P, Q
<b>III new well</b>	A, B, C, D, F, H, I, J, K, M — S, U
<b>existing</b>	A, B, C, D, F, H, J, K, M — U
<b>Other Classes</b>	To be specified by the permitting authority

# INSTRUCTIONS - Underground Injection Control (UIC) Permit Application

## PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 255 hours for Class I wells, 16 hours for Class II wells, and 200 hours for Class III wells per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

This form must be completed by all owners or operators of Class I, II, and III injection wells and others who may be directed to apply for permit by the Director.

- I. **EPA I.D. NUMBER** - Fill in your EPA Identification Number. If you do not have a number, leave blank.
- II. **OWNER NAME AND ADDRESS** - Name of well, well field or company and address.
- III. **OPERATOR NAME AND ADDRESS** - Name and address of operator of well or well field.
- IV. **COMMERCIAL FACILITY** - Mark the appropriate box to indicate the type of facility.
- V. **OWNERSHIP** - Mark the appropriate box to indicate the type of ownership.
- VI. **LEGAL CONTACT** - Mark the appropriate box.
- VII. **SIC CODES** - List at least one and no more than four Standard Industrial Classification (SIC) Codes that best describe the nature of the business in order of priority.
- VIII. **WELL STATUS** - Mark Box A if the well(s) were operating as injection wells on the effective date of the UIC Program for the State. Mark Box B if wells(s) existed on the effective date of the UIC Program for the State but were not utilized for injection. Box C should be marked if the application is for an underground injection project not constructed or not completed by the effective date of the UIC Program for the State.
- IX. **TYPE OF PERMIT** - Mark "Individual" or "Area" to indicate the type of permit desired. Note that area permits are at the discretion of the Director and that wells covered by an area permit must be at one site, under the control of one person and do not inject hazardous waste. If an area permit is requested the number of wells to be included in the permit must be specified and the wells described and identified by location. If the area has a commonly used name, such as the "Jay Field," submit the name in the space provided. In the case of a project or field which crosses State lines, it may be possible to consider an area permit if EPA has jurisdiction in both States. Each such case will be considered individually, if the owner/operator elects to seek an area permit.
- X. **CLASS AND TYPE OF WELL** - Enter in these two positions the Class and type of injection well for which a permit is requested. Use the most pertinent code selected from the list on the reverse side of the application. When selecting type X please explain in the space provided.
- XI. **LOCATION OF WELL** - Enter the latitude and longitude of the existing or proposed well expressed in degrees, minutes, and seconds or the location by township, and range, and section, as required by 40 CFR Part 146. If an area permit is being requested, give the latitude and longitude of the approximate center of the area.
- XII. **INDIAN LANDS** - Place an "X" in the box if any part of the facility is located on Indian lands.
- XIII. **ATTACHMENTS** - Note that information requirements vary depending on the injection well class and status. Attachments for Class I, II, III are described on pages 4 and 5 of this document and listed by Class on page 2. Place EPA ID number in the upper right hand corner of each page of the Attachments.
- XIV. **CERTIFICATION** - All permit applications (except Class II) must be signed by a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, and by a principal executive or ranking elected official for a public agency. For Class II, the person described above should sign, or a representative duly authorized in writing.

## INSTRUCTIONS - Attachments

Attachments to be submitted with permit application for Class I, II, III and other wells.

- A. **AREA OF REVIEW METHODS** - Give the methods and, if appropriate, the calculations used to determine the size of the area of review (fixed radius or equation). The area of review shall be a fixed radius of  $\frac{1}{4}$  mile from the well bore unless the use of an equation is approved in advance by the Director.
- B. **MAPS OF WELL/AREA AND AREA OF REVIEW** - Submit a topographic map, extending one mile beyond the property boundaries, showing the injection well(s) or project area for which a permit is sought and the applicable area of review. The map must show all intake and discharge structures and all hazardous waste treatment, storage, or disposal facilities. If the application is for an area permit, the map should show the distribution manifold (if applicable) applying injection fluid to all wells in the area, including all system monitoring points. Within the area of review, the map must show the following:

### **Class I**

The number, or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, and other pertinent surface features, including residences and roads, and faults, if known or suspected. In addition, the map must identify those wells, springs, other surface water bodies, and drinking water wells located within one quarter mile of the facility property boundary. Only information of public record is required to be included in this map;

### **Class II**

In addition to requirements for Class I, include pertinent information known to the applicant. This requirement does not apply to existing Class II wells;

### **Class III**

In addition to requirements for Class I, include public water systems and pertinent information known to the applicant.

- C. **CORRECTIVE ACTION PLAN AND WELL DATA** - Submit a tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within the area of review, including those on the map required in B, which penetrate the proposed injection zone. Such data shall include the following:

### **Class I**

A description of each well's types, construction, date drilled, location, depth, record or plugging and/or completion, and any additional information the Director may require. In the case of new injection wells, include the corrective action proposed to be taken by the applicant under 40 CFR 144.55.

### **Class II**

In addition to requirement for Class I, in the case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review which penetrate formations affected by the increase in pressure. This requirement does not apply to existing Class II wells.

### **Class III**

In addition to requirements for Class I, the corrective action proposed under 40 CFR 144.55 for all Class III wells.

- D. **MAPS AND CROSS SECTION OF USDWs** - Submit maps and cross sections indicating the vertical limits of all underground sources of drinking water within the area of review (both vertical and lateral limits for Class I), their position relative to the injection formation and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection. (Does not apply to Class II wells.)

- E. **NAME AND DEPTH OF USDWs (CLASS II)** - For Class II wells, submit geologic name, and depth to bottom of all underground sources of drinking water which may be affected by the injection.
- F. **MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA** - Submit maps and cross sections detailing the geologic structure of the local area (including the lithology of injection and confining intervals) and generalized maps and cross sections illustrating the regional geologic setting. (Does not apply to Class II wells.)
- G. **GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES (Class II)** - For Class II wells, submit appropriate geological data on the injection zone and confining zones including lithologic description, geological name, thickness, depth and fracture pressure.
- H. **OPERATING DATA** - Submit the following proposed operating data for each well (including all those to be covered by area permits): (1) average and maximum daily rate and volume of the fluids to be injected; (2) average and maximum injection pressure; (3) nature of annulus fluid; (4) for Class I well, source and analysis of the chemical, physical, radiological and biological characteristics, including density and corrosiveness, of injection fluids; (5) for Class II wells, source and analysis of the physical and chemical characteristics of the injection fluid; (6) for Class III wells, a qualitative analysis and ranges in concentrations of all constituents of injected fluids. If the information is proprietary, maximum concentrations only may be submitted, but all records must be retained.
- I. **FORMATION TESTING PROGRAM** - Describe the proposed formation testing program. For Class I wells the program must be designed to obtain data on fluid pressure, temperature, fracture pressure, other physical, chemical, and radiological characteristics of the injection matrix and physical and chemical characteristics of the formation fluids.
- For Class II wells the testing program must be designed to obtain data on fluid pressure, estimated fracture pressure, physical and chemical characteristics of the injection zone. (Does not apply to existing Class II wells or projects.)
- For Class III wells the testing must be designed to obtain data on fluid pressure, fracture pressure, and physical and chemical characteristics of the formation fluids if the formation is naturally water bearing. Only fracture pressure is required if the program formation is not water bearing. (Does not apply to existing Class III wells or projects.)
- J. **STIMULATION PROGRAM** - Outline any proposed stimulation program
- K. **INJECTION PROCEDURES** - Describe the proposed injection procedures including pump, surge, tank, etc.
- L. **CONSTRUCTION PROCEDURES** - Discuss the construction procedures (according to §146.12 for Class I, §146.22 for Class II, and §146.32 for Class III) to be utilized. This should include details of the casing and cementing program, logging procedures, deviation checks, and the drilling, testing and coring program, and proposed annulus fluid. (Request and submission of justifying data must be made to use an alternative to packer for Class I.)
- M. **CONSTRUCTION DETAILS** - Submit schematic or other appropriate drawings of the surface and subsurface construction details of the well.
- N. **CHANGES IN INJECTED FLUID** - Discuss expected changes in pressure, native fluid displacement, and direction of movement of injection fluid. (Class III wells only.)
- O. **PLANS FOR WELL FAILURES** - Outline contingency plans (proposed plans, if any, for Class II) to cope with all shut-ins or wells failures, so as to prevent migration of fluids into any USDW.
- P. **MONITORING PROGRAM** - Discuss the planned monitoring program. This should be thorough, including maps showing the number and location of monitoring wells as appropriate and discussion of monitoring devices, sampling frequency, and parameters measured. If a manifold monitoring program is utilized, pursuant to §146.23(b)(5), describe the program and compare it to individual well monitoring.
- Q. **PLUGGING AND ABANDONMENT PLAN** - Submit a plan for plugging and abandonment of the well including: (1) describe the type, number, and placement (including the elevation of the top and bottom) of plugs to be used; (2) describe the type, grade, and quantity of cement to be used; and (3) describe the method to be used to place plugs, including the method used to place the well in a state of static equilibrium prior to placement of the plugs. Also for a Class III well that underlies or is in an exempted aquifer, demonstrate adequate protection of USDWs. Submit this information on EPA Form 7520-14, Plugging and Abandonment Plan.

- R. **NECESSARY RESOURCES** - Submit evidence such as a surety bond or financial statement to verify that the resources necessary to close, plug or abandon the well are available.
- S. **AQUIFER EXEMPTIONS** - If an aquifer exemption is requested, submit data necessary to demonstrate that the aquifer meets the following criteria: (1) does not serve as a source of drinking water; (2) cannot now and will not in the future serve as a source of drinking water; and (3) the TDS content of the ground water is more than 3,000 and less than 10,000 mg/l and is not reasonably expected to supply a public water system. Data to demonstrate that the aquifer is expected to be mineral or hydrocarbon production, such as general description of the mining zone, analysis of the amenability of the mining zone to the proposed method, and time table for proposed development must also be included. For additional information on aquifer exemptions, see 40 CFR Sections 144.7 and 146.04.
- T. **EXISTING EPA PERMITS** - List program and permit number of any existing EPA permits, for example, NPDES, PSD, RCRA, etc.
- U. **DESCRIPTION OF BUSINESS** - Give a brief description of the nature of the business.



**CLASS V WELL PRE-CLOSURE NOTIFICATION FORM**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF GROUND WATER AND DRINKING WATER**

1. Name of facility:\_\_\_\_\_

Address of facility:\_\_\_\_\_

\_\_\_\_\_

City/Town:\_\_\_\_\_ State:\_\_\_\_\_ Zip Code:\_\_\_\_\_

County:\_\_\_\_\_ Location:\_\_\_\_\_

2. Name of Owner/Operator:\_\_\_\_\_

Address of Owner/Operator:\_\_\_\_\_

\_\_\_\_\_

City/Town:\_\_\_\_\_ State:\_\_\_\_\_ Zip Code:\_\_\_\_\_

Legal contact:\_\_\_\_\_ Phone number:\_\_\_\_\_

3. Type of well(s):\_\_\_\_\_ Number of well(s):\_\_\_\_\_

4. Well construction (check all that apply):

<input type="checkbox"/> Drywell	<input type="checkbox"/> Septic tank	<input type="checkbox"/> Cesspool
<input type="checkbox"/> Improved sinkhole	<input type="checkbox"/> Drainfield/leachfield	<input type="checkbox"/> Other_____

5. Type of discharge:\_\_\_\_\_

\_\_\_\_\_

6. Average flow (gallons/day):\_\_\_\_\_ 7. Year of well construction:\_\_\_\_\_

8. Type of well closure (check all that apply):

<input type="checkbox"/> Sample fluids/sediments	<input type="checkbox"/> Clean out well
<input type="checkbox"/> Appropriate disposal of remaining fluids/sediments	<input type="checkbox"/> Install permanent plug
<input type="checkbox"/> Remove well & any contaminated soil	<input type="checkbox"/> Conversion to other well type
<input type="checkbox"/> Other (Describe):_____	

9. Proposed date of well closure:\_\_\_\_\_

10. Name of preparer:\_\_\_\_\_ Date:\_\_\_\_\_

**PAPERWORK REDUCTION ACT NOTICE**

The public reporting and recordkeeping burden for this collection of information is estimated to average 1.5 hours per respondent. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Regulatory Information Division, U.S. Environmental Protection Agency (2137), 401 M St., S.W., Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

## INSTRUCTIONS

You must complete this form to notify the U.S. EPA that you intend to close a Underground Injection Control (UIC) Class V well at your facility. You may complete one form for more than one of the same type of Class V well at each facility. For example, if you will be closing two drywells that are of similar construction at your facility, you may use one form.

The numbers below correspond to the numbers on the form.

1. Supply the name and street address of the facility where the Class V well(s) is located. Include the City/Town, State (U.S. Postal Service abbreviation) and Zip Code. If there is no street address for the Class V well, provide the route number or locate the well(s) on a map. If available, for the "Location" provide the Latitude/Longitude of the well or the legal description of the facility.
2. Provide the name and mailing address of the owner of the facility or if the facility is operated by lease, the operator of the facility. Include the name and phone number of the legal contact for any questions regarding the information provided.
3. Indicate the type of Class V well that you intend to close. For example, motor vehicle waste disposal well or cesspool). Provide the number of wells of this well type at your location that will be closed.
4. Mark an "x" in the appropriate box to indicate the type of well construction. Mark all that apply to your situation. For example, for a septic tank that drains into a drywell, mark both the "septic tank" and "drywell" boxes. Please provide a generalized sketch or schematic of the well construction if available.
5. List or describe the types of fluids that enter the Class V well. If available, attach a copy of the chemical analysis results and/or the Material Safety Data Sheets for the fluids that enter the well.
6. Estimate the average daily flow into the well in gallons per day.
7. Provide the year that the Class V well was constructed. If unknown, provide the length of time that your business has been at this location and using this well.
8. Mark an "x" in the appropriate box(s) to indicate briefly how the well closure is expected to proceed. Mark all that apply to your situation. For example, all boxes except the "Remove well & any contaminated soil" and "Other" would be marked if: the connection of an automotive service bay drain leading to a septic tank and drainfield will be closed, but the septic system will continue to be used for washroom waste disposal only, and the fluids and sludge throughout the system will be removed for proper disposal, the system cleaned, a cement plug placed in the service bay drain and the pipe leading to the washroom connection, and the septic tank/drainfield remains open for septic use only. In this example, the motor vehicle waste disposal well is being converted to another well type (a large capacity septic system).
9. Self explanatory.
10. Self explanatory.

The purpose of this form is to serve as the means for the Class V well owner or operator's notice to the UIC Director of their intent to close the well in accordance with Title 40 of the Code of Federal Regulations (40 CFR) Section 144.12 (a). According to 40 CFR §144.86, you must notify the UIC Program Director at least 30 days prior to well closure of you intent to close and abandon your well. Upon receipt of this form, if the Director determines that more specific information is required to be submitted to ensure that the well closure will be conducted in a manner that will protect underground sources of drinking water (as defined in 40 CFR §144.3), the Director can require the owner/operator to prepare, submit and comply with a closure plan acceptable to, and approved by the Director.

Please be advised that this form is intended to satisfy federal UIC requirements regarding pre-closure notification only. Other state, tribal or local requirements may also apply.



## INSTRUCTIONS AND DEFINITIONS

**SECTION 1. DATE PREPARED:** Enter date in order of year, month, and day.

**SECTION 2. FACILITY ID NUMBER:** In the first two spaces, insert the appropriate U.S. Postal Service State Code. In the third space, insert one of the following one letter alphabetic identifiers:

- D - DUNS Number,
- G - GSA Number, or
- S - State Facility Number.

In the remaining spaces, insert the appropriate nine digit DUNS, GSA, or State Facility Number. For example, A Federal facility (GSA - 123456789) located in Virginia would be entered as: VAG123456789.

**SECTION 3. TRANSACTION TYPE:** Place an "x" in the applicable box. See below for further directions.

**Deletion.** Fill in the Facility ID Number.

**First Time Entry.** Fill in all the appropriate information.

**Entry Change.** Fill in the Facility ID Number and the information that has changed.

**Replacement.**

**SECTION 4. FACILITY NAME AND LOCATION:**

- A. **Name.** Fill in the facility's official or legal name.
- B. **Street Address.** Self Explanatory.
- C. **Latitude.** Enter the facility's latitude (all latitudes assume North except for American Samoa).
- D. **Longitude.** Enter the facility's longitude (all longitudes assume West except for Guam).
- E. **Township/Range.** Fill in the complete township and range. The first 3 spaces are numerical and the fourth is a letter (N,S,E,W) specifying a compass direction. A township is North or South of the baseline, and a range is East or West of the principal meridian (e.g., 132N, 343W).
- F. **City/Town.** Self Explanatory.
- G. **State.** Insert the U.S. Postal Service State abbreviation.
- H. **Zip Code.** Insert the five digit zip code plus any extension.

**SECTION 4. FACILITY NAME & LOCATION (CONT'D.):**

- I. **Numeric County Code.** Insert the numeric county code from the Federal Information Processing Standards Publication (FIPS Pub 6-1) June 15, 1970, U.S. Department of Commerce, National Bureau of Standards. For Alaska, use the Census Division Code developed by the U.S. Census Bureau.
- J. **Indian Land.** Mark an "x" in the appropriate box (Yes or No) to indicate if the facility is located on Indian land.

**SECTION 5. LEGAL CONTACT:**

- A. **Type.** Mark an "x" in the appropriate box to indicate the type of legal contact (Owner or Operator). For wells operated by lease, the operator is the legal contact.
- B. **Name.** Self Explanatory.
- C. **Phone.** Self Explanatory.
- D. **Organization.** If the legal contact is an individual, give the name of the business organization to expedite mail distribution.
- E. **Street/P.O. Box.** Self Explanatory.
- F. **City/Town.** Self Explanatory.
- G. **State.** Insert the U.S. Postal Service State abbreviation.
- H. **Zip Code.** Insert the five digit zip code plus any extension.
- I. **Ownership.** Place an "x" in the appropriate box to indicate ownership status.

**SECTION 6. WELL INFORMATION:**

- A. **Class and Type.** Fill in the Class and Type of injection wells located at the listed facility. Use the most pertinent code (specified below) to accurately describe each type of injection well. For example, 2R for a Class II Enhanced Recovery Well, or 3M for a Class III Solution Mining Well, etc.
- B. **Number of Commercial and Non-Commercial Wells.** Enter the total number of commercial and non-commercial wells for each Class/Type, as applicable.
- C. **Total Number of Wells.** Enter the total number of injection wells for each specified Class/Type.
- D. **Well Operation Status.** Enter the number of wells for each Class/Type under each operation status (see key on other side).

## INJECTION WELL CLASS AND TYPE CODES

**CLASS I** Industrial, Municipal, and Radioactive Waste Disposal Wells used to inject waste below the lowermost Underground Source of Drinking Water (USDW).

- TYPE II** Non-Hazardous Industrial Disposal Well.
- 1M** Non-Hazardous Municipal Disposal Well.
- 1H** Hazardous Waste Disposal Well injecting below the lowermost USDW.
- 1R** Radioactive Waste Disposal Well.
- 1X** Other Class I Wells.

**CLASS II** Oil and Gas Production and Storage Related Injection Wells.

- TYPE 2A** Annular Disposal Well.
- 2D** Produced Fluid Disposal Well.
- 2H** Hydrocarbon Storage Well.
- 2R** Enhanced Recovery Well.
- 2X** Other Class II Wells.

**CLASS III** Special Process Injection Wells.

- TYPE 3G** *In Situ* Gassification Well.
- 3M** Solution Mining Well.

**CLASS III (CONT'D.)**

- TYPE 3S** Sulfur Mining Well by Frasch Process.
- 3T** Geothermal Well.
- 3U** Uranium Mining Well.
- 3X** Other Class III Wells.

**CLASS IV** Wells that inject hazardous waste into/above USDWs.

- TYPE 4H** Hazardous Facility Injection Well.
- 4R** Remediation Well at RCRA or CERCLA site.

**CLASS V** Any Underground Injection Well not included in Classes I through IV.

- TYPE 5A** Industrial Well.
- 5B** Beneficial Use Well.
- 5C** Fluid Return Well.
- 5D** Sewage Treatment Effluent Well.
- 5E** Cesspools (non-domestic).
- 5F** Septic Systems (non-domestic).
- 5G** Experimental Technology Well.
- 5H** Drainage Well.
- 5I** Mine Backfill Well.
- 5J** Waste Discharge Well.

## Revisions to the Underground Injection Control Regulations for Class V Injection Wells

### State Implementation Workshop

## Purpose of This Training

- To explain new requirements for owners and operators of specific Class V wells
- To present a draft guide for State implementation of the new Class V Rule
- To suggest options and areas of flexibility available in Rule implementation
- To assist States to understand how to update their primacy packages.

## Background to the Class V Rule

Underground Injection Control

### Background -- Underground Injection Control: Regulatory Authorities

- Underground Injection Control (UIC) regulations are promulgated under the authority of Part C of the Safe Drinking Water Act (SDWA) of 1974.
- Section 1421 of the SDWA requires EPA to propose and promulgate regulations specifying minimum requirements for State programs.
- Section 1422 of the SDWA provides that States may apply to EPA for primary enforcement responsibility to administer the UIC program.

### Background -- Underground Injection Control: Regulatory Authorities

- States that received primary enforcement responsibility to administer the UIC programs are referred to as "Primacy States."
- Where States do not seek authority or fail to meet EPA's minimum implementation requirements, EPA must prescribe and directly implement a UIC program for these States that are referred to as "Direct Implementation (DI) States."

### Background -- Regulatory Classification of Injection Wells: Class I to Class V

- Class I - Wells that inject wastes beneath the lowermost formation containing an *underground source of drinking water* (USDW).
- Class II - Wells used to inject fluids associated with oil and natural gas recovery and storage of liquid hydrocarbons.
- Class III - Wells associated with solution mining (e.g., extraction of uranium, copper, and salts).

#### Background -- Regulatory Classification of Injection Wells: Class I to Class V

- Class IV - Wells used to inject hazardous or radioactive waste into or above USDWs. These wells are banned.
- Class V - Any injection well that is not contained in Classes I to IV.

#### Background -- Class V Injection Wells

- Typically shallow disposal systems that are used to place a variety of fluids below the land surface, into or above USDWs.
- Generally "low tech" construction - no more than dry wells or septic tank and leachfield combinations designed for sanitary waste disposal.

#### Background -- Class V Injection Wells

- Examples of Class V wells include:
  - Motor vehicle waste disposal wells
  - Large-capacity cesspools
  - Industrial waste disposal wells
  - Storm water drainage wells
  - Agricultural drainage wells
  - Large-capacity septic systems

#### Background -- EPA's Strategy for Class V Wells

- Phase I
  - Identify and regulate high-risk Class V wells -- regulations finalized by November 23, 1999.
  - Conducted a study of remaining Class V wells -- study completed by September 30, 1999.
- Phase II
  - Regulate additional well types (if needed).
  - Propose rulemaking by April 2001.
  - Final rulemaking by May 31, 2002.

### Federal Requirements for All Class V Wells

Authorities already in place

Applicable to all Class V wells

Cover all geographic areas

#### Background -- Federal Requirements for all Class V Wells (except motor vehicle waste disposal wells and large-capacity cesspools)

- Authorization by rule (144.24)
  - If wells do not endanger USDWs.
  - Well owners or operators must submit inventory information.
  - State or EPA may require permit or order action to prevent endangerment (including well closure).

**Federal Requirements Applicable to all Class V Wells  
(40 CFR 144)**

- **Prohibition to endanger (144.12)**
  - Does not allow the movement of fluid containing any contaminant into USDWs, if the presence of that contaminant may cause a violation of any primary drinking water regulation or adversely affect public health.

**Federal Requirements Applicable to all Class V Wells  
(40 CFR 144)**

- **Inventory requirement (144.26)**
  - Well owner or operator must submit inventory information to the State or EPA.
  - A well owner or operator is not allowed to use the well upon failure to submit inventory information.

**Federal Requirements Applicable to all Class V Wells  
(40 CFR 144)**

- **Additional requirements of DI Programs**
  - **Failure to submit inventory requirements (144.26):**
    - The owner or operator must cease injection;
    - The owner or operator must submit inventory information; and
    - The owner or operator may resume injection 90 days after submitting the information unless receives notice from EPA.
  - **Submission of additional information (144.27):**
    - The owner or operator may be required by EPA to submit information for review to determine if a well may be endangering an USDW.

**Federal Requirements Applicable to all Class V Wells  
(40 CFR 144)**

- **Permit requirement (if deemed necessary) (144.25)**
- **Permit effective for a fixed term not to exceed 10 years.**

**The Class V Rule**

Subpart G  
Large-Capacity Cesspools  
Motor Vehicle Waste Disposal Wells

**The Class V Rule**

- **1998 Proposed Rule**
  - Public comments
  - National Drinking Water Advisory Council
  - Notice of data availability (May 1999)
- **The Class V Rule was signed by the EPA Administrator on November 23, 1999.**
- **The Rule was published in the *Federal Register* on December 7, 1999.**
- **The Rule will be effective on April 5, 2000.**

### General Summary of the Class V Rule

- All Class V requirements consolidated under Subpart G
- New definitions
- New requirements for owners/operators of large-capacity cesspools and motor vehicle waste disposal wells

### General Summary of the Class V Rule

- Deep radioactive waste disposal wells moved from Class V to Class I
- Majority of Rule targets owner/operator

### General Summary of the Class V Rule -- Prohibition of Two Well Types

- Large-capacity cesspools -- Banned
  - New - April 5, 2000
  - Existing - April 5, 2005
- New motor vehicle waste disposal wells -- Banned
  - April 5, 2000
- Existing motor vehicle waste disposal wells -- Banned unless well owner or operator obtains a waiver
  - Those in ground water protection areas -- one year after assessment complete
  - Those in other sensitive ground water areas -- January 1, 2007

## Source Water Assessment and Protection

Relationship with the Class V Rule

### Background -- Classification of Public Water Systems

- A public water system (PWS) is a water system that provides water to the public for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves at least 25 individuals.
  - Community water systems
  - Non-transient non-community water systems
  - Transient non-community water systems

### Background -- Classification of Public Water Systems

- A community water system (CWS) serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.
- A non-transient non-community water system (NTNCWS) regularly serves at least 25 of the same persons per day for more than 6 months per year (e.g., schools).
- A transient non-community water system (TNCWS) serves 25 persons per day for 6 months or less per year (e.g., highway rest stops and campgrounds).



### Background -- State Source Water Assessment and Protection Programs

- Established by the 1996 Amendments to the SDWA.
- Provide incentives for States to conduct assessments of source water of all PWSs in the States.

### State Source Water Assessment and Protection Programs

- Four major components of source water assessments:
  - Delineate areas providing source water to PWSs.
  - Identify potential contaminants in the delineated areas.
  - Determine the susceptibility of PWSs to the contaminants.
  - Make assessment results available to the public.

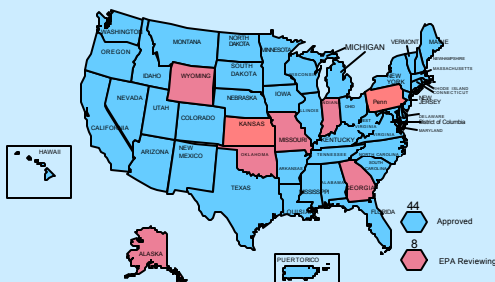
### State Source Water Assessment and Protection Programs and the Class V Rule

- Ground water protection areas:
  - Geographic areas near and/or surrounding community and non-transient non-community water systems (CWSs and NTNCWSs) that use ground water as a source of drinking water.
  - Assessed as part of State Source Water Assessment and Protection Programs.
  - The Class V Rule is **not** linked to the assessments of transient non-community water systems (TNCWSs).

### State Source Water Assessment and Protection Programs and the Class V Rule

- Time line for States to complete assessments of ground water protection areas (as part of the State Source Water Assessment and Protection Programs):
  - Submission of State program plans - **February 1999**
  - Approval by EPA - 9 months after plan submission (*circa November 1999*)
  - Completion of all assessments by States (without extension) - 2 years after approval (*circa November 2001*)
  - Completion of all assessments by States (with maximum extension of 18 months) - 3.5 years after approval (*circa May 2003*)

SWAP Program Approvals  
March 22, 2000



### State Source Water Assessment and Protection Programs and the Class V Rule

- Time line for States to complete assessments of ground water protection areas (as specified in the Class V Rule):
  - Completion of assessments of ground water protection areas - **January 1, 2004.**
  - Completion of assessments of ground water protection areas (with maximum extension) - **January 1, 2005.**
- \* Application to extend completion date to assess ground water protection areas - **June 1, 2003.**

## Other Sensitive Ground Water Areas

Additional areas critical for protection of USDWs

### Other Sensitive Ground Water Areas and the Class V Rule

- Other sensitive ground water areas:
  - Added because of public comments on the need to further protect USDWs.
  - Geographic areas not designated as ground water protection areas (as specified in the Class V Rule).
  - Areas critical in the protection of USDWs.
  - Allow States to focus program resources in vulnerable areas.

### Other Sensitive Ground Water Areas and the Class V Rule

- Other sensitive ground water areas may include:
  - Highly productive aquifers that supply TNCWSs or private wells
  - Areas overlying sole-source aquifers
  - Aquifer recharge areas
  - Karst aquifers
  - Other hydrogeologically vulnerable areas

### Other Sensitive Ground Water Areas and the Class V Rule

- Time line for States to submit plan for delineation of other sensitive ground water areas
  - Submission of State delineation plan (as a part of the State primacy revision package) - **December 29, 2000**
  - Plan must include description of, and schedule for, delineating other sensitive ground water areas

### Other Sensitive Ground Water Areas and the Class V Rule

- States should consider:
  - criteria for inclusion of certain sensitive geologic conditions (e.g., geology and hydrogeology)
  - criteria for inclusion of legally designated aquifers (e.g., sole source aquifers)
  - criteria for exclusion of certain insensitive areas (e.g., depth to ground water and presence of confining layers)
  - public participation (e.g., outreach and public input -- SWAP)
  - make designations know to the public (e.g., adoption of source water assessment approach)

### Other Sensitive Ground Water Areas and the Class V Rule

- States have the flexibility not to delineate other sensitive ground water areas - if determined to be unnecessary because:
    - Existing statewide ban of motor vehicle waste disposal wells.
    - New statewide ban of motor vehicle waste disposal wells.
    - Absence of motor vehicle waste disposal wells in the State.
    - Much of the State is consisted of sensitive ground water areas.
- Note: If a State does not plan to delineate, it must explain in its primacy revision package

#### Other Sensitive Ground Water Areas and the Class V Rule

- Time line for States to complete delineation of other sensitive ground water areas
  - Completion of delineation by States - **January 1, 2004\***
- \* States may apply for up to a one-year extension by June 1, 2003

#### Other Sensitive Ground Water Areas

- While the UIC Directors are responsible for delineating the sensitive ground water areas, they may want to work with other offices or agencies.
- Others who may be involved include
  - State Source Water Assessment Personnel
  - State Geological Survey Personnel
  - State Water Resources Personnel

### Rule Requirements on Large-Capacity Cesspools

Exclusion criteria  
Specific requirements  
Implementation time line  
Endangering wells

#### Exclusion Criteria for Large-Capacity Cesspools

- Large-capacity cesspools are typically dry wells that receive sanitary wastes from multiple dwellings and community or regional establishments.
- The UIC requirements do not apply to single family residential cesspools nor to non-residential cesspools that receive solely sanitary waste and have the capacity to serve fewer than 20 persons a day.

#### Requirements on New Large-Capacity Cesspools

- All new large-capacity cesspools for which construction have not started before April 5, 2000 are banned as of **April 5, 2000** nationwide.

#### Requirements on Existing Large-Capacity Cesspools

- All existing large-capacity cesspools must be closed nationwide by **April 5, 2005**.
- There are no extensions available to well owners and operators.

### Pre-Closure Notification Requirement on Existing Large-Capacity Cesspools

- **New** Pre-Closure Notification (144.88)
  - Well owners and operators must notify the State or EPA of their intent to close the wells at least 30 days prior to well closure.
  - States can allow or require closure before the 30 days have passed if they choose to do so, but the owner and operator cannot close sooner without State approval.
  - National Pre-Closure Notification Form (OMB No. 2040-0214); required for DI programs, and optional for Primacy States

### Well Closure Requirements on Existing Large-Capacity Cesspools

- Additional closure requirements were not finalized in the Class V Rule. However, the Rule does state that:
  - A well must be closed in a manner that prevents movement of contaminated fluids that may endanger USDWs.
  - Any soil, gravel, sludge, liquids, or other materials removed from or adjacent to the well must be disposed or managed in accordance with all applicable Federal, State, and local regulations and requirements.

### Reporting Requirements Associated With Existing Large-Capacity Cesspools

- Reporting requirements
  - **New** requirements for well owners and operators:
    - Well owners and operators must notify the State or EPA of his or her intent to close the well at least 30 days prior to planned well closure.

### Reporting Requirements Associated With Existing Large-Capacity Cesspools

- Reporting requirements (*continued*)
  - For Primacy States and EPA with DI programs:
    - Receipt and/or review of pre-closure notifications.
    - Maintain records of pre-closure notifications.
    - Compile and submit summary information of Class V programs.

### Reporting Requirements Associated With Existing Large-Capacity Cesspools

- Reporting requirements (*continued*)
  - For EPA Regional Offices:
    - Compile and submit summary information of Class V programs.

### Requirements on Existing Large-Capacity Cesspools that Endanger USDWs

- Endangering wells:
  - All large-capacity cesspools have the potential to endanger.
  - States are expected to use authorities under 40 CFR 144.12(a) to address imminently endangering wells.

## Rule Requirements on Motor Vehicle Waste Disposal Wells

Specific requirements  
Endangering wells  
Other topics

### Definition -- Motor Vehicle Waste Disposal Wells

- Motor vehicle waste disposal wells receive or have received fluids from vehicular repairs or maintenance activities, such as auto body repair, automotive repair, new and used car dealership, specialty repair (e.g., transmission and muffler repair), or other vehicular repair work (e.g., airplane, train, and boat repair).

### Requirements on New Motor Vehicle Waste Disposal Wells

- All new motor vehicle waste disposal wells for which construction have not started before April 5, 2000 are banned as of **April 5, 2000** nationwide.

### Requirements on Existing Motor Vehicle Waste Disposal Wells

- Compliance dates for existing motor vehicle waste disposal wells --
  - are dependent on the implementation choices made by individual States

### Pre-Closure Notification Requirements on Existing Motor Vehicle Waste Disposal Wells

- New Pre-Closure Notification (144.88)
  - Well owners and operators must notify the State or EPA of his or her intent to close the well at least 30 days prior to planned well closure.
  - States can allow or require closure before the 30 days have passed if they choose to do so, but the owner and operator cannot close sooner without State approval.
  - National Pre-Closure Notification Form (OMB No. 2040-0214); required for DI Programs and optional for Primacy States.

### Well Closure Requirements on Existing Motor Vehicle Waste Disposal Wells

- Additional closure requirements were not finalized in the Class V Rule. However, the Rule does state that:
  - A well must be closed in a manner that prevents movement of contaminated fluids that may endanger USDWs.
  - Any soil, gravel, sludge, liquids, or other materials removed from or adjacent to the well must be disposed or managed in accordance with all applicable Federal, State, and local regulations and requirements.

### Permit Requirements on Existing Motor Vehicle Waste Disposal Wells

- **Permit Requirements**
  - Minimum conditions
    1. Fluids released must meet the MCL and other appropriate health-based standards at the point of injection.
    2. Best management practices (BMPs) for motor vehicle-related facilities must be followed.
    3. Monitoring requirements to ensure the quality of the injectate and sludge, both initially and on a continuing basis, is in compliance with the MCL and other health-based standards.

### Sample Monitoring Requirements on Existing Motor Vehicle Waste Disposal Wells

- Example 1:**
- If injectate and liquid from the sludge have chemical concentrations below the MCL and other health-based standards
    - analyze the injectate quarterly for the first three years
    - analyze the injectate annually if it is consistently below the MCL and other health-based standards
    - analyze sludge annually

### Sample Monitoring Requirements on Existing Motor Vehicle Waste Disposal Wells

- Example 2:**
- Injectate is below the MCL and other health-based standards, but liquid from sludge is above the standards
    - analyze the injectate quarterly for the first three years
    - pump and properly dispose of their sludge
    - analyze the injectate annually if it is consistently below the MCL and other health-based standards
    - analyze sludge annually

### Sample Monitoring Requirements on Existing Motor Vehicle Waste Disposal Wells

- Example 3:**
- Injectate and sludge are above the MCL and other health-based standards
    - install treatment to meet MCL and other health-based standards at the point of injection
    - pump and properly dispose of their sludge
    - perform quarterly sampling of injectate for the first three years and then annually if consistently below the MCL and other health-based standards
    - perform annual sampling of sludge
    - comply with other State requirements to protect USDWs
    - close the well if the owner or operator cannot meet the permit requirements

### Reporting Requirements Associated With Existing Motor Vehicle Waste Disposal Wells

- **Reporting requirements**
- Existing requirements for permitted wells now apply to these wells (for example, permit application and other record retention requirements)
  - New requirement for well owners and operators:
    - Owners and operators must submit all monitoring reports to the State or EPA as specified in the permits.
    - Well owners and operators must notify the State or EPA of his or her intent to close the well at least 30 days prior to well closure.

### Reporting Requirements Associated With Existing Motor Vehicle Waste Disposal Wells

- **Reporting requirements (*continued*)**
  - For Primacy States and EPA with DI programs:
    - Review permit applications and issue or deny permits.
    - Review monitoring data.
    - Receipt and/or review of pre-closure notifications.
    - Maintain records of permit applications and issuances, monitoring reports, and pre-closure notifications.
    - Compile and submit summary information of Class V programs.

### Reporting Requirements Associated With Existing Motor Vehicle Waste Disposal Wells

- **Reporting requirements (continued)**
  - For EPA Regional Offices:
    - Compile and submit summary information of Class V programs.

### Information Flow Among Class V Well Owners and Operators, Primacy States and DI Programs, and EPA

Submission of Information from	to Primacy States	to EPA Regions	to EPA Headquarters
Well owners and operators in Primacy States	Inventory information, permit applications, monitoring reports, and pre-closure notice		
Well owners and operators in DI States		Inventory information, permit applications, pre-closure notice	
Primacy States		Summary of inventory, permit review and issuance, inspections, noncompliance evaluation, pre-closure notifications, and closure witnessed	
EPA Regions			Summary of inventory, permit review and issuance, inspections, noncompliance evaluation, pre-closure notifications, and closure witnessed

### Other Issues Associated with Motor Vehicle Waste Disposal Wells

- **Conversion of motor vehicle waste disposal wells to other Class V wells -- authorized by UIC Director if:**
  - All motor vehicle-related fluids must be segregated by a physical barrier and are not allowed to enter the well.
  - Implement BMPs and ensure physical segregation of motor vehicle waste fluids from the injection well.
  - Good compliance history of the facility and records of proper waste disposal.
- **\*\* Semi-permanent plug is not sufficient for conversions.**

Note: EPA is developing a guidance to help State and well owners and operators to properly convert motor vehicle waste disposal wells to other Class V wells.

### Other Issues Associated with Motor Vehicle Waste Disposal Wells

- **Storm Water Drainage Wells**
  - Not a rule requirement -- for clarification purpose only.
  - Storm water drainage wells located at motor vehicle facilities that are designed for storm water management but also may receive insignificant amounts of fuel due to unintentional small volume leaks, drips, or spills at the fuel pumps are not considered to be motor vehicle waste disposal wells.

Note: EPA is developing a guidance to help State and well owners and operators to determine the status of storm water drainage wells located at motor vehicle service facilities.

### Requirements on Existing Motor Vehicle Waste Disposal Wells that Endanger USDWs

- **Endangering wells:**
  - All motor vehicle waste disposal wells have the potential to endanger.
  - States are expected to use authorities under 40 CFR 144.12(a) to address imminently endangering wells.

### Time Line for Motor Vehicle Waste Disposal Wells

Compliance Dates for Existing Wells

## 1. Time Line for Motor Vehicle Waste Disposal Wells --

### Linkage to Ground Water Protection Areas

#### Time Line for Existing Motor Vehicle Waste Disposal Wells in Ground Water Protection Areas

- After results of local assessments for ground water protection areas are made available to the public:
  - Owners and operators of affected wells have **one year** to close their wells or operate their wells under permit conditions.
  - The State and EPA may grant a one-year extension to well owners and operators, on a case by case basis, if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technologies.

Note: If a State fails to complete all local assessments for ground water protection areas by January 1, 2004, the rule applies statewide.

#### Time Line for Existing Motor Vehicle Waste Disposal Wells in Ground Water Protection Areas in States that Receive Extensions to Complete Their Assessments

- A State that has made substantial progress in completing its assessments for ground water protection areas, may apply to EPA (by June 1, 2003) for an extension for up to one year. If the State completes all assessment by the extended deadline (i.e., January 1, 2005):
  - Owners and operators of affected wells have **one year** to close their wells or operate their wells under permit conditions.
  - The State and EPA may grant a one-year extension to well owners and operators, on a case by case basis, if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technologies.

Note: If a State fails to complete all local assessments for ground water protection areas by January 1, 2005, the rule applies statewide.

## 2. Time Line for Motor Vehicle Waste Disposal Wells --

### Linkage to Other Sensitive Ground Water Areas

#### Time Line for Existing Motor Vehicle Waste Disposal Wells in Other Sensitive Ground Water Areas

- Delineation results of other sensitive ground water areas must be made available to the public by January 1, 2004:
  - Owners and operators of affected wells have until **January 1, 2007** to either close their wells or operate their wells under permit conditions.
  - The State and EPA may grant a one-year extension to well owners and operators, on a case by case basis, if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technologies.

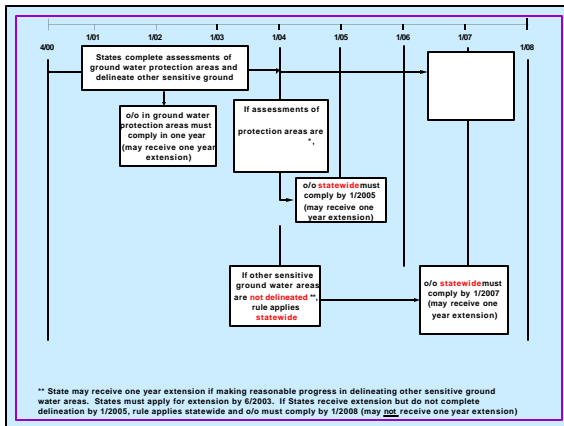
Note: If a State fails to delineate other sensitive ground water areas by January 1, 2004, the rule applies statewide.

#### Time Line for Existing Motor Vehicle Waste Disposal Wells in Other Sensitive Ground Water Areas Delineated in States that Receive an Extension

- Delineation results of other sensitive ground water areas are made available to the public by January 1, 2005 (i.e., with maximum extension granted by EPA):
  - Owners and operators of affected wells have until **January 1, 2008** to either close their wells or operate their wells under permit conditions.
  - The State and EPA **may not** grant a one-year extension to well owners and operators.

Note: If a State fails to delineate other sensitive ground water areas by January 1, 2005, the rule applies statewide.





### Options to consider when linking time line to GWPAs and OSGWAs

- If States choose not to link with GWPAs and OSGWAs, they must develop and submit their implementation time lines for EPA review
- Implementation time line must be as stringent as the federal requirements
- If States choose to implement the rule statewide, they must take the SWAP time frames into consideration when developing their time lines (e.g., date for completing the first assessment)
- For areas outside GWPAs, depending on States' decisions to link with OSGWAs, well owners and operators must comply by January 1, 2007

### Other Changes to the UIC Regulations

Reclassification of radioactive waste disposal wells  
Rule authorization of Class IV wells used in site cleanup and remediation  
Clarification of plugging and abandonment requirements for Class IV and V wells  
New definitions

### Other Changes - Reclassification of Radioactive Waste Disposal Wells

- Class V radioactive waste disposal wells are reclassified into the Class I category (144.6(a) and 146.5(a)).
  - They are currently regulated as Class I wells in terms of permitting, construction, operation, monitoring, reporting, mechanical integrity testing, area of review, and plugging and abandonment.
  - Reclassification is administratively simpler and more streamlined than keeping radioactive waste disposal wells in the Class V category and developing additional requirements under the Class V program.

### Other Changes - Rule Authorization of Class IV Wells for Site Cleanup and Remediation

- Class IV wells used for site cleanup and remediation are authorized by rule for the life of the wells (144.23(c)).
  - They must be approved by EPA or States pursuant to provisions for cleanup contaminant releases under CERCLA or RCRA.
  - Voluntary cleanup efforts (not covered under CERCLA or RCRA) are not allowed to operate Class IV wells for site cleanup and remediation.

### Reiteration of Plugging and Abandonment Requirements for Class IV and Class V Wells

- Reiterate plugging and abandonment requirements (40 CFR 144.10)
- All Class IV and Class V wells must be closed in a manner that prevents the movement of fluid containing any contaminant into a USDW, if the presence of that contaminant may cause a violation of any primary drinking water regulation or adversely affect public health.
- Any soil, gravel, sludge, liquids, or other materials removed from or adjacent to the closed well must be disposed or managed in accordance with all applicable Federal, State, and local regulations.

#### **New Definition -- Point of Injection**

- Point of injection for Class V wells means the last accessible sample point prior to waste fluids being released into the subsurface environment.
  - For a septic system, it may be the distribution box -- the last accessible point before the waste fluids drain into the leachfield and the underlying soils.
  - For a dry well, it may be the well bore itself.

#### **New Definitions -- Septic System and Drywell**

- Septic system means a “well” that is used to emplace sanitary waste below the surface and is typically comprised of a septic tank and subsurface fluid distribution system or disposal system.
- Drywell means a well, other than an improved sinkhole or subsurface fluid distribution system, completed above the water table so that its bottom and sides are typically dry except when receiving fluids.

#### **New Definitions -- Subsurface Fluid Distribution System and Improved Sinkhole**

- Subsurface fluid distribution system means an assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground.
- Improved sinkhole means a naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purpose of directing and emplacing fluids into the subsurface.

#### **New Definitions -- Sanitary Waste**

- Sanitary waste means liquid or solid wastes originating solely from humans and human activities, such as wastes collected from toilets, showers, wash basins, sinks used for cleaning domestic areas, sinks used for food preparation, clothes washing operations, and sinks or washing machines where food and beverage serving dishes, glasses, and utensils are cleaned. Sources of these wastes may include single or multiple residences, hotel and motels, restaurants, bunkhouses, schools, ranger stations, crew quarters, guard stations, campgrounds, picnic grounds, day-use recreation areas, other commercial facilities, and industrial facilities provided the waste is not mixed with industrial waste.

#### **Modified Definitions -- Well and Well Injection**

- Well means
  - a bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or
  - a dug hole whose depth is greater than the largest surface dimension; or
  - an improved sinkhole; or
  - a subsurface fluid distribution system.
- Well injection means
  - subsurface emplacement of fluids through a well.

## **Information Sharing**

State Implementation of the Class V Rule

#### Information Sharing Between Agencies to Implement the Class V Rule in Ground Water Protection Areas

- Coordination and information sharing between the UIC and Source Water Assessment and Protection Programs is essential to ensure the successful implementation of the Class V Rule in **ground water protection areas**.
  - Scheduling of the assessment process (e.g., assigning higher priority to the completion of ground water protection areas).
  - Informing the regulated community regarding the completion of local assessments.
  - Determining schedule to finalize assessment to balance workload.

#### Information Sharing Between Agencies to Implement the Class V Rule in Other Sensitive Ground Water Areas

- Information sharing between the UIC and other appropriate agencies (e.g., State Geological Surveys and State Drinking Water Programs) is essential to ensure the successful implementation of the Class V Rule in **other sensitive ground water areas**.
  - Criteria of the delineation process for other sensitive ground water areas.
  - Informing the regulated community regarding the completion of the delineation process.

#### Information for the Public and Well Owners and Operators to Implement the Class V Rule

- Results of local source water assessments for **ground water protection areas** and the delineation of **other sensitive ground water areas** should be made available to the public and affected motor vehicle waste disposal well owners and operators in a timely manner.
  - Through outreach efforts
  - Notification of affected well owners and operators

#### Information for the Public and Well Owners and Operators to Implement the Class V Rule

- For example:
  - Additional outreach efforts coordinated between the UIC and other appropriate agencies (e.g., State Drinking Water Programs) can be conducted through:
    - Trade organizations
    - Building and plumbing inspectors
    - Local watershed associations
  - States or EPA should attempt to notify owners and operators of their location in ground water protection areas and compliance deadlines
    - using UIC well inventory
    - source water assessments' contaminant source inventory

#### Tools for Information Sharing

- EPA is developing tools to help with outreach, including:
  - Brief rule summaries and explanations, targeting local governing authorities such as local health departments, plumbing inspectors, building code inspectors
  - Well owner and operator guide

## Jurisdictional Issues

State Implementation of the Class V Rule

#### Jurisdictional Issues

- Cesspools and septic systems of varying sizes are regulated at different governmental levels in different States.
  - State Department of Environmental Protection (e.g., ground water discharge permit).
  - State Department of Health (e.g., health regulations).
  - Local Board of Health (e.g., local sanitary ordinance).

#### Jurisdictional Issues

- State UIC programs may transfer part of their authorities to State Health Departments or other State agencies to:
  - Oversee the closure of large-capacity cesspools.
  - Ensure no new permits will be issued for large-capacity cesspools.
  - Ensure floor drains in motor vehicle facilities are not connected to dry wells or septic systems.
- Transfer of authorities can be accomplished by providing technical assistance and through Memoranda of Understanding between agencies or departments.

#### Jurisdictional Issues

- Joint jurisdiction due to historical regulatory practices can be confusing to owners and operators of large-capacity cesspools.
- If appropriate agencies fail to coordinate their efforts and requirements:
  - Extra burden on well owners and operators to response to multiple agencies.
  - Allow inappropriate injection practices to endanger USDWs under non-UIC program requirements.
- UIC Programs are still responsible for compliance with UIC requirements.



# National Primary Drinking Water Standards

Contaminant	MCLG <sup>1</sup> (mg/L) <sup>4</sup>	MCL <sup>2</sup> or TT <sup>3</sup> (mg/L) <sup>4</sup>	Potential Health Effects from Exposure Above the MCL	Common Sources of Contaminant in Drinking Water
<b>Inorganic Chemicals</b>				
Antimony	0.006	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic	none <sup>5</sup>	0.05	Skin damage; circulatory system problems; increased risk of cancer	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	7 MFL	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits
Barium	2	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium	0.004	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Cadmium	0.005	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium (total)	0.1	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits
Copper	1.3	Action Level=1.3; TT <sup>6</sup>	Short term exposure: Gastrointestinal distress Long term exposure: Liver or kidney damage Those with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Cyanide (as free cyanide)	0.2	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride	4.0	4.0	Bone disease (pain and tenderness of the bones) Children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Lead	zero	Action Level=0.015; TT <sup>6</sup>	Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits
Mercury (Inorganic)	0.002	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands
Nitrate (measured as Nitrogen)	10	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (measured as Nitrogen)	1	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium	0.05	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines
Thallium	0.0005	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

Contaminant	MCLG <sup>1</sup> (mg/L) <sup>4</sup>	MCL <sup>2</sup> or TT <sup>3</sup> (mg/L) <sup>4</sup>	Potential Health Effects from Exposure Above the MCL	Common Sources of Contaminant in Drinking Water
<b>Organic Chemicals</b>				
Acrylamide	zero	TT <sup>7</sup>	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/wastewater treatment
Alachlor	zero	0.002	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops
Atrazine	0.003	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops
Benzene	zero	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills
Benzo(a)pyrene	zero	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines
Carbofuran	0.04	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa
Carbon tetrachloride	zero	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities
Chlordane	zero	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide
Chlorobenzene	0.1	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories
2,4-D	0.07	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops
Dalapon	0.2	0.2	Minor kidney changes	Runoff from herbicide used on rights of way
1,2-Dibromo-3-chloropropane (DBCP)	zero	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards
o-Dichlorobenzene	0.6	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories
p-Dichlorobenzene	0.075	0.075	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories
1,2-Dichloroethane	zero	0.005	Increased risk of cancer	Discharge from industrial chemical factories
1-1-Dichloroethylene	0.007	0.007	Liver problems	Discharge from industrial chemical factories
cis-1, 2-Dichloroethylene	0.07	0.07	Liver problems	Discharge from industrial chemical factories
trans-1,2-Dichloroethylene	0.1	0.1	Liver problems	Discharge from industrial chemical factories
Dichloromethane	zero	0.005	Liver problems; increased risk of cancer	Discharge from drug and chemical factories
1-2-Dichloropropane	zero	0.005	Increased risk of cancer	Discharge from industrial chemical factories
Di(2-ethylhexyl)adipate	0.4	0.4	General toxic effects or reproductive difficulties	Discharge from chemical factories
Di(2-ethylhexyl)phthalate	zero	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories
Dinoseb	0.007	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables
Dioxin (2,3,7,8-TCDD)	zero	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories
Diquat	0.02	0.02	Cataracts	Runoff from herbicide use
Endothall	0.1	0.1	Stomach and intestinal problems	Runoff from herbicide use
Endrin	0.002	0.002	Liver problems	Residue of banned insecticide
Epichlorohydrin	zero	TT <sup>7</sup>	Increased cancer risk, and over a long period of time, stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals
Ethylbenzene	0.7	0.7	Liver or kidneys problems	Discharge from petroleum refineries

Contaminant	MCLG <sup>1</sup> (mg/L) <sup>4</sup>	MCL <sup>2</sup> or TT <sup>3</sup> (mg/L) <sup>4</sup>	Potential Health Effects from Exposure Above the MCL	Common Sources of Contaminant in Drinking Water
Ethylene dibromide	zero	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries
Glyphosate	0.7	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use
Heptachlor	zero	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide
Heptachlor epoxide	zero	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor
Hexachlorobenzene	zero	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories
Hexachloro-cyclopentadiene	0.05	0.05	Kidney or stomach problems	Discharge from chemical factories
Lindane	0.0002	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens
Methoxychlor	0.04	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
Oxamyl (Vydate)	0.2	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes
Polychlorinated biphenyls (PCBs)	zero	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals
Pentachlorophenol	zero	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood preserving factories
Picloram	0.5	0.5	Liver problems	Herbicide runoff
Simazine	0.004	0.004	Problems with blood	Herbicide runoff
Styrene	0.1	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene	zero	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners
Toluene	1	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories
Total Trihalomethanes (TTHMs)	none <sup>5</sup>	0.10	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection
Toxaphene	zero	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle
2,4,5-TP (Silvex)	0.05	0.05	Liver problems	Residue of banned herbicide
1,2,4- Trichlorobenzene	0.07	0.07	Changes in adrenal glands	Discharge from textile finishing factories
1,1,1- Trichloroethane	0.20	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories
1,1,2- Trichloroethane	0.003	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories
Trichloroethylene	zero	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories
Vinyl chloride	zero	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories
Xylenes (total)	10	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories
<b>Radionuclides</b>				
Beta particles and photon emitters	none <sup>5</sup>	4 millirems per year (mrem/yr)	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation
Gross alpha particle activity	none <sup>5</sup>	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation

Contaminant	MCLG <sup>1</sup> (mg/L) <sup>4</sup>	MCL <sup>2</sup> or TT <sup>3</sup> (mg/L) <sup>4</sup>	Potential Health Effects from Exposure Above the MCL	Common Sources of Contaminant in Drinking Water
Radium 226 and Radium 228 (combined)	none <sup>5</sup>	5 pCi/L	Increased risk of cancer	Erosion of natural deposits
<b>Microorganisms</b>				
<i>Giardia lamblia</i>	zero	TT <sup>8</sup>	Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste
Heterotrophic plate count (HPC)	N/A	TT <sup>8</sup>	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment
<i>Legionella</i>	zero	TT <sup>8</sup>	Legionnaire's Disease, a type of pneumonia <sup>9</sup>	Found naturally in water; multiplies in heating systems
Total Coliforms (including fecal coliform and <i>E. coli</i> )	zero	5.0% <sup>10</sup>	Not a health threat in itself; it is used to indicate whether other potentially harmful bacteria may be present <sup>11</sup>	Total coliforms are naturally present in the environment; fecal coliforms and <i>E. coli</i> come from human and animal fecal waste.
Turbidity	N/A	TT <sup>8</sup>	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff
Viruses (enteric)	zero	TT <sup>8</sup>	Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste

## Notes

1 Maximum Contaminant Level Goal (MCLG) - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.

2 Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.

3 Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.

4 Units are in milligrams per Liter (mg/L) unless otherwise noted.

5 MCLGs were not established before the 1986 Amendments to the Safe Drinking Water Act. The standard for this contaminant was set prior to 1986. Therefore, there is no MCLG for this contaminant.

6 Lead and copper are regulated using a Treatment Technique which requires systems to control the corrosiveness of their water. The action level serves as a trigger for water systems to take additional treatment steps if exceeded in more than 10% of tap water samples. For copper, the action level is 1.3 mg/L, and for lead is 0.015mg/L.

7 Each water system must certify, in writing, to the state that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05% dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01% dosed at 20 mg/L (or equivalent)

8 The Surface Water Treatment Rule requires systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or provide the same level of treatment as those who filter. Treatment must reduce the levels of *Giardia lamblia* (parasite) by 99.9% and viruses by 99.99%. *Legionella* (bacteria) has no limit, but EPA believes that if *Giardia* and viruses are inactivated, *Legionella* will also be controlled. At no time can turbidity (cloudiness of water) go above 5 nephelometric turbidity units (NTU) [systems that filter must ensure that the turbidity is no higher than 1 NTU (0.5 NTU for conventional or direct filtration) in at least 95% of the daily samples for any single month]; HPC- no more than 500 bacterial colonies per milliliter.

9 Legionnaire's disease occurs when aerosols containing *Legionella* are inhaled by susceptible persons, not when people drink water containing *Legionella*. (Aerosols may come from showers, hot water taps, whirlpools and heat rejection equipment such as cooling towers and air conditioners.) Some types of *Legionella* can cause a type of pneumonia called Legionnaire's Disease. *Legionella* can also cause a much less severe disease called Pontiac Fever. The symptoms of Pontiac Fever may include muscle pain, headache, coughing, nausea, dizziness and other symptoms.

10 No more than 5.0% of samples may be total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample may be total coliform-positive during a month). Every sample that has total coliforms must be analyzed for either *E. coli* or fecal coliforms to determine whether human or animal fecal matter is present (fecal coliform and *E. coli* are part of the total coliform group).

11 Fecal coliform and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Disease-causing microbes (pathogens) in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. These pathogens may pose a special health risk for infants, young children, and people with severely compromised immune systems.



# **BEST MANAGEMENT PRACTICES FOR THE PROTECTION OF GROUND WATER**

*A Local Official's Guide to Managing Class V UIC Wells*



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## **GENERAL BEST MANAGEMENT PRACTICES**

General Best Management Practices are BMPs which can be applied to any facility. This section includes Design BMPs and Procedural BMPs which deal with the following topics:

### **DESIGN BMPs**

Subsurface Disposal Systems  
Floor Drains  
Dry Wells  
Floors  
Storage Facilities  
Cooling Water  
Utilities  
Water Conservation  
Foundation Drainage & Dewatering  
Stormwater Management  
Cross-connections  
Work Areas  
Connection to Municipal Sanitary Sewers  
Holding Tanks

### **PROCEDURAL BMPs**

Material & Waste Inventory Control  
Preventative & Corrective Maintenance  
Spill Control  
Materials & Waste Management  
Management  
Employee Training  
Communication  
Record Keeping

General BMPs should be applied in addition to the specific BMPs for each of the facilities covered in this guidebook. Selecting the general BMPs appropriate for each facility is at the discretion of the local regulatory official, or as required to comply with state and local regulations.

# BEST MANAGEMENT PRACTICES

## GENERAL

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### DESIGN BMPs

#### Subsurface Disposal Systems

Minimum setback distances should be established between limits of leach fields and wellheads. Distances should be based on information such as percolation tests, zone of influence of leachate mounding, wellhead protection areas, and time of travel.

Leach fields must be sized according to soil characteristics, and hydraulic and pollutant loadings. Excessively sized septic system leach fields may cause reduced effectiveness if normal flows are inadequate to maintain a biologically active clogging layer throughout the leach field.

Septic systems are not recommended in areas with karst, fractured, cavernous, volcanic or any other highly permeable subsurface formation.

Additional detention times for septic tanks, and larger buffer zones around leachfields should be considered in septic system design.

All septic tank installations should be designed or retrofitted with provisions for sampling at the outlet baffle. Gas baffles should be installed at the outlet.

Maximum contaminant levels must be met for pollutants prior to discharge to leachfield distribution system.

Any facility on a septic system must have its septic tanks effluent monitored for Ph, BOD<sub>5</sub>, nitrites, nitrates, and ammonia. Monitoring should be done annually, and increased to a quarterly schedule if detectable levels are recorded. After three successive non-detectable readings, the monitoring can be reduced to an annual schedule.

Verify that the septic system is serviced by a waste hauler.

#### Floor Drains

Eliminate floor drain discharges to the ground, septic systems (except in sanitary facilities), storm sewers, or to any surface water body from any location in the facility.

If no floor drains are installed, all discharges to the floor should be collected, contained and disposed by an appropriate waste hauler in accordance with federal and state requirements.

Floor drains in sanitary facilities must either discharge to a septic system, a municipal sanitary sewer, or a holding tank which is periodically pumped out.

Floor drains in work areas can either be connected to a holding tank with a gravity discharge pipe, or to a collection sump which discharges to a holding tank.

#### Dry Wells

Dry wells must be eliminated in ALL cases unless they receive ONLY CLEAN WATER DISCHARGES which meets all established Maximum Contaminant Levels (MCLs) promulgated under the Safe Drinking Water Act and other state and local standards for drinking water, and is in compliance with any other state and local requirements.

#### Floors

Floor surfaces in work areas and chemical storage areas should be sealed with an impermeable material resistant to acids, caustics, solvents, oils, or any other substance which may be used or generated at the facility. Sealed floors are easier to clean without

## BEST MANAGEMENT PRACTICES

### GENERAL

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the use of solvents.

Work area floors should be pitched to appropriate floor drains. If floor drains are not used, or if they are located close to entrance ways then berms should be constructed along the full width of entrances to prevent stormwater runoff from entering the building.

Berms should also be used to isolate floor drains from spill-prone areas.

#### Storage Facilities

Loading and unloading of materials and wastes should be done within an enclosed or roofed area with secondary containment and isolated from floor drains to prevent potential spills from contaminating stormwater or discharging to the ground.

Underground storage tanks should not be used, unless explicitly required by fire codes or other federal, state or local regulations.

Where underground tanks are required, they should have double-walled construction or secondary containment such as a concrete vault lined or sealed with an impermeable material and filled with sand. Both types of tanks should have appropriate secondary containment monitoring, high level and leak sensing audio/visual alarms, level indicators, and overfill protection. If a dip stick is used for level measurements, there should be a protective plate or basket where the stick may strike the tank bottom.

Above-ground tanks should have 110% secondary containment or double-walled construction, alarms, overfill protection, and should be installed in an enclosed area isolated from floor drains, stormwater sewers, or other conduits which may cause a release into the environment.

Fill-pipe inlets should be above the elevation of the top of the storage tank

Tanks and associated appurtenances should be tested periodically for structural integrity.

Storage areas for new and waste materials should be permanently roofed, completely contained within secondary containment berms, isolated from floor drains, have sealed surfaces, and should not be accessible to unauthorized personnel.

Drum and container storage areas should be consolidated into one location for better control of material and waste inventory.

#### Cooling Water

Closed-loop cooling systems should be considered to eliminate cooling water discharges.

Any cooling water from solvent recovery systems should be free of contamination from solvent, metals or other pollutants, and should not discharge to the ground. Cooling water may be discharged to a storm sewer, sanitary sewer, or stream, provided all federal, state, and local requirements are met.

#### Utilities

Floor drains should be eliminated in rooms where boilers or emergency generators are housed.

#### Water Conservation

Flow restrictors and low-flow faucets for sinks and spray nozzles should be installed to minimize hydraulic loading to subsurface disposal systems.

# BEST MANAGEMENT PRACTICES

## GENERAL

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### Foundation Drainage & Dewatering

If water from foundation drainage and dewatering is not contaminated, it may be discharged to a storm sewer or stream in accordance with any applicable federal, state or local requirements.

Contaminated water from foundation drainage & dewatering indicates a likely groundwater contamination problem, which should be investigated and remediated as necessary.

### Stormwater Management

Stormwater contact with materials and wastes must be avoided to the greatest extent possible. Storage of materials and wastes should be isolated in roofed or enclosed areas to prevent contact with precipitation.

Uncovered storage areas should have a separate stormwater collection system which discharges to a holding tank.

Stormwater from building roofs may discharge to the ground. However, if solvent distillation equipment or vapor degreasing is used, with a vent that exhausts to the roof, then roof leaders may become cross contaminated with solvent. These potential sources of cross contamination must be investigated and eliminated.

### Cross-connections

Cross-connections, such as sanitary discharges to storm sewers, stormwater discharges to sanitary sewers, or floor drain discharges to storm sewer systems, should be identified and eliminated.

### Work Areas

Consolidate waste-generating operations and physically segregate them from other operations. They should preferably be located within a containment area with sealed floors and with no direct access to outside the facility. This reduces the total work area exposed to solvents, facilitates waste stream segregation and efficient material and waste handling, and minimizes cross contamination with other operations and potential pathways for release into the environment.

Waste collection stations should be provided throughout work areas for the accumulation of spent chemicals, soiled rags, etc. Each station should have labelled containers for each type of waste fluid. This provides safe interim storage of wastes, reduces frequent handling of small quantities of wastes to storage areas, and minimizes the overall risk of a release into the environment.

New solvent can be supplied by dedicated feed lines or dispensers to minimize handling of materials. These feed lines must default to a closed setting to prevent unmonitored release of material.

### Connection to Municipal Sanitary Sewers

Existing and future facilities should connect their sanitary facilities to municipal sanitary sewer systems where they are available.

### Holding Tanks

Facilities should discharge to holding tanks if they are located where municipal sanitary sewers are not available, subsurface disposal systems are not feasible, existing subsurface disposal systems are failing, or if they are high risk facilities located in wellhead protection areas.

# **BEST MANAGEMENT PRACTICES**

## **GENERAL**

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### **PROCEDURAL BMPs**

#### **Material & Waste Inventory Control**

Conduct monthly monitoring of inventory and waste generation.

Order raw materials on an as-needed basis and in appropriate unit sizes to avoid waste and reduce inventory.

Observe expiration dates on products in inventory.

Eliminate obsolete or excess materials from inventory.

Return unused or obsolete products to the vendor.

Consider waste management costs when buying new materials and equipment.

Ensure material and waste containers are properly labelled. Not labeling or mislabelling is a common problem.

Mark purchase date and use older materials first.

Maintain product Material Safety Data Sheets to monitor materials in inventory and the chemical ingredients of wastes. Make MSDS sheets available to employees.

Observe maximum on-site storage times for wastes.

Control access to materials which are hazardous when spent; encourage material substitution.

#### **Preventative & Corrective Maintenance**

A regularly scheduled internal inspection and maintenance program should be implemented to service equipment, to identify potential leaks and spills from storage and equipment failure, and to take corrective action as necessary to avoid a release to the environment. At a minimum, the schedule should address the following areas:

Tanks, drums, containers, pumps, equipment, and plumbing;

Work stations & waste disposal stations;

Outside and inside storage areas, and stormwater catch basins & detention ponds;

Evidence of leaks or spills within the facility and on the site;

Areas prone to heavy traffic from loading and off loading of materials and wastes;

Properly secured containers when not in use;

Proper handling of all containers;

Dripping from exhaust vents;

## BEST MANAGEMENT PRACTICES

### GENERAL

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Proper operation of equipment, solvent recovery, and emission control systems.

#### Spill Control

Use emergency spill kits and equipment. Locate them at storage areas, loading and unloading areas, dispensing areas, work areas.

Clean spills promptly.

Use recyclable rags or absorbent spill pads to clean up minor spills, and dispose of these materials properly.

Clean large spills with a wet vacuum, squeegee and dust pan, absorbent pads, or booms. Dispose of all clean up materials properly.

Minimize the use of disposable granular- or powder- absorbents.

Spilled material should be neutralized as prescribed in Material Safety Data Sheets (MSDS), collected, handled and disposed in accordance with federal, state, and local regulations.

Use shake-proof and earthquake proof containers and storage facilities to reduce spill potential.

#### Materials & Waste Management

Use spigots, pumps, or funnels for controlled dispensation and transfer of materials to reduce spillage; use different spigots, etc., for different products to maintain segregation and minimize spillage.

Store materials in a controlled, enclosed environment (minimal temperature and humidity variations) to prolong shelf life, minimize evaporative releases, and prevent moisture from accumulating.

Keep containers closed to prevent evaporation, oxidation, and spillage.

Place drip pans under containers and storage racks to collect spillage.

Segregate wastes that are generated, such as hazardous from non-hazardous, acids from bases, chlorinated from nonchlorinated solvents, and oils from solvents, in order to minimize disposal costs and facilitate recycling and reuse.

Empty drums and containers may be reused, after being properly rinsed, for storing the same or compatible materials.

Recycle cleaning rags and have them cleaned by an appropriate industrial launderer.

Use dry cleanup methods and mopping rather than flooding with water.

Floors may be roughly cleaned with absorbent prior to mopping; select absorbents which can be reused or recycled.

Recycle cardboard and paper, and reuse or recycle containers and drums.

## BEST MANAGEMENT PRACTICES

### GENERAL

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Wastes accumulated in holding tanks and containers must be disposed of through an appropriately licensed waste transporter in accordance with federal, state, and local regulations.

#### Management

Management involvement in the waste reduction and pollution prevention initiatives is essential to its successful implementation in the work place. By setting the example and encouraging staff participation through incentives or awards, management can increase employee awareness about environmentally sound practice. A first step is to involve management in conducting a waste stream analysis to determine the potential for waste reduction and pollution prevention. This analysis should include the following steps:

Identify plant processes where chemicals are used and waste is generated;

Evaluate existing waste management and reduction methods;

Research alternative technologies;

Evaluate feasibility of waste reduction options;

Implement measures to reduce wastes; and

Periodically evaluate your waste reduction program.

Develop an energy and materials conservation plan to promote the use of efficient technologies, well-maintained inventories, and reduced water and energy consumption.

Sound environmental management should include the currency and completeness of site and facility plans, facility records and inventory management, discharge permits, manifests for disposal of wastes, contracts with haulers for wastes, and contracts with service agents to handle recycling of solvents or to regularly service equipment.

#### Employee Training

Training programs should be developed which include the following:

Proper operation of process equipment;

Loading and unloading of materials;

Purchasing, labelling, storing, transferring, and disposal of materials;

Leak detection, spill control, and emergency procedures; and

Reuse/recycling/material substitution.

Employees should be trained prior to working with equipment or handling of materials, and should be periodically refreshed when new regulations or procedures are developed.

Employees should be made aware of MSDS sheets and should understand their information.

Employee awareness of the environmental and economic benefits of waste reduction and



## **BEST MANAGEMENT PRACTICES**

### **GENERAL**

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pollution prevention, and the adverse consequences in ignoring them, can also facilitate employee participation.

#### **Communication**

Posting of signs, communication with staff, education and training, and posting of manuals for spill control, health and safety (OSHA), operation and maintenance of facility and equipment, and emergency response are essential. Storage areas for chemicals and equipment, employee bathrooms, manager's office, and waste handling stations are suggested areas for posting communication. A bulletin board solely for environmental concerns should be considered.

Regular inspection and maintenance schedules should be posted and understood by staff.

#### **Record Keeping**

Facility plans, plumbing plans, and subsurface disposal system plans and specifications must be updated to reflect current facility configuration. Copies of associated approvals and permits should be maintained on file.

OSHA requirements, health and environmental emergency procedures, materials management plans, inventory records, servicing/repair/inspections logs, medical waste tracking and hazardous waste disposal records must be maintained up to date and made available for inspection by regulatory officials.

## AUTOMOTIVE SERVICES AND REPAIR

**Background** This category includes automotive repair and service shops (SIC Nos. 753x and 754x). Specific services of concern include Top, Body, and Upholstery Repair Shops and Paint Shops (SIC No. 7532); Automotive Exhaust System Repair Shops (SIC No. 7533); Automotive Transmission Repair Shops (SIC No. 7537); General Automotive Repair Shops (SIC No. 7538); Automotive Repair Shops, Not Elsewhere Classified (SIC No. 7539); and Carwashes (SIC No. 7542). Automotive Dealers and Gasoline Service Stations are classified separately in SIC major group 55; most of these facilities have repair operations and produce similar wastes.

### Description of Operations

#### General Maintenance

**& Repair** Common types of vehicle maintenance operations include drainage and replacement of lubricants, coolants, and brake fluids; radiator and brake maintenance, and incidental mechanical repairs. Rapid lubrication and oil change services have become particularly popular automotive specialty services which handle large quantities of oils and other fluids.

Automotive repairs shops conduct a range of vehicular repair and maintenance services, which may include application of paints and coatings, as well as mechanical repairs. In addition to general repair shops, this group includes specialty muffler, brake, and transmission repair shops.

Parts cleaning and degreasing of automotive parts and steam cleaning of engines are regularly performed as part of maintenance and repair activities. The use of solvents and detergents has been the focus of environmental concerns.

#### Radiator Repair

Radiator repair shops clean, flush, and repair radiators. Radiators are drained of coolant and cleaned in tanks of highly alkaline solution (pH above 12), which may contain zinc chloride, and then rinsed with water either in a dip tank or by flushing with a hose. Radiators are pressure tested in a tank of water by plugging the inlet and outlet and blowing air into the radiator through an air hose. After testing and drying, radiators may be spray painted.

#### Autobody Repair &

**Refinishing** Paint and body shops repair and paint vehicles. Old paint may be removed by stripping and sanding and new paints applied with hand-held sprayers. Body shops are frequently very small, two or three person operations.

**Rustproofing** Rustproofing shops may remove dirt from the undercarriage of vehicles using pressure hoses. Vehicles may also be pretreated with rust removers containing strong acids or alkalis prior to spraying on rustproofing solutions. Solvents such as kerosene or mineral spirits are used to clean spray equipment and to remove rustproofing compounds from painted surfaces of the vehicle, often using a hand-held solvent spray gun.

**Car Washing** Automatic car washes are equipped with high-pressure spigots dispensing soap solutions, usually containing a degreasing agent such as methylene chloride or trichloroethylene (TCE), rinsewater, and waxes, and with rotating brushes and buffers. Self-service car washes may provide covered or outdoor paved areas with pressurized spray hoses dispensing soap solutions, rinsewater, and wax.

## General Assessment and Recommendations for the Local Regulatory Official

A large number of surface-water and ground-water contamination incidents have been attributed to various types of operations associated with automotive service and repair. Vehicle service bay floor drains have been the principal route of contamination. Floor drains receive various wastes such as floor washdown containing detergents, sediments, and road salts; leaked or spilled fuels, oils, and solvents; drippage from vehicles; particulate paint wastes with heavy metals; and drips and spills from rustproofing operations. If these drains are connected to dry wells or septic systems, they provide a route of injection of these wastes to ground water; these injection wells may be difficult to find if they are located under buildings or paved surfaces. In some cases floor drains may discharge to storm sewers or directly to surface waters.

Wastewaters from floor washdown and car washes have been permitted to discharge to municipal sanitary sewer systems if they are pretreated for oil and grit removal. However, little is known about the impacts of these discharges to septic systems and ground water.

There is also a potential for ground-water and surface-water contamination through improper storage of solvents; spillage; improper disposal of concentrated liquid wastes by pouring on the ground or by burying wastes on-site; or through improper handling and disposal of solid wastes such as fuel and oil filters, used batteries, and engine parts. In addition, many of these shops have underground fuel storage tanks which have the potential to contaminate ground water through their failure.

### Recommendations for Existing and New/Expanded Facilities

AUTOMOTIVE SERVICES & REPAIR		RECOMMENDATION	
		EXISTING FACILITIES	NEW OR EXPANDED FACILITIES
LAND USE CONTROLS	Unsewered Area	Regulate; prohibit all discharges other than sanitary wastes to septic systems; require permit; certify compliance with BMPs; connect floor drains to holding tanks	PROHIBIT
	Sewered Area	Same as above; vehicle service floor drains and aqueous cleaners may discharge to municipal sanitary sewer if treated and in compliance with federal, state, and local sewer regulations	See EXISTING FACILITIES
	Unsewered WHPA	See Unsewered Area	PROHIBIT
	Sewered WHPA	See Sewered Area	PROHIBIT
POTENTIAL PROBLEMS REQUIRING INSPECTION		Inspect annually for improper storage of new & waste paints, solvents & motor vehicle fluids; dumping of wastes down drains, septic systems, dry wells, storm drains & outside of facility on the ground; outside storage of vehicle and scrap materials; contracts with waste haulers; underground waste oil and fuel tanks	N/A
MONITORING/SAMPLING OF EFFLUENT FROM SEPTIC TANKS (Unsewered Area)		Sample annually (semiannually in WHPA) for aromatic & halogenated hydrocarbons, oil & grease, pH, ethylene glycol (antifreeze), cadmium, copper, lead, zinc, chromium, surfactants	N/A
OTHER		Coordinate with licensing at the state motor vehicle department. Departments usually issue automotive dealers and repairers licenses, which can be issued only after the appropriate environmental permits are obtained and in compliance with BMPs.  Two EPA Guides to Pollution Prevention are available for more detailed information: The Automotive Repair Industry, October 1991 (EPA 625/7-91/013) The Automotive Refinishing Industry, October 1991 (EPA 625/7-91/017)	

### Materials Used and Wastes Generated in Automotive Services & Repair

OPERATION	TYPICAL MATERIALS USED	TYPICAL WASTES GENERATED
Maintenance & Repair	Lubricating oils, oil additives & greases, power steering & brake fluids, radiator coolant (ethylene glycol, propylene glycol), windshield washing fluid (methanol), fuel additives (methanol), solvents, carburetor cleaners, oil filters, air conditioning coolant (freon), detergents	Waste oils & antifreeze, spent solvents & carburetor cleaners, solvent-tank sludges, soiled rags, empty containers, scrap metal parts, brake shoes, oil filters, freon, spent absorbents
Parts Repair & Rebuilding	Lubricating oils & greases, solder (lead, tin), solvents, degreasers, detergents	Waste oils drained from components, solder dross, empty oil & grease containers and dispensers, spent solvents & detergents, soiled rags, scrap metal parts
Parts Cleaning & Degreasing	Degreasers, carburetor cleaners, engine cleaners, solvents & degreasing agents containing mineral spirits, petroleum distillates (naphtha), aromatic hydrocarbons (toluene, xylene), fluorocarbons, acids, alkalis, alcohols (methanol, isopropyl alcohol), chlorinated hydrocarbons (1,1,1-trichloroethane)	Spent solvent, acids & alkaline solutions from cleaning baths; solvent- & oil-soaked rags; incidental spills; cleaning of tools
Radiator Repair	Antifreeze, (ethylene glycol, propylene glycol), strong alkaline solutions (sodium hydroxide), acids (muriatic acid), zinc chloride, paints and thinners, rinsewater, solder (lead, tin)	Spent acidic & alkaline solutions, alkaline sludges; waste antifreeze, paints, thinners, flushing rinsewaters, sludges from treatment of recycled rinsewater, solder dross; scrap radiators & radiator repair wastes contaminated with significant levels of heavy metals (lead, copper, zinc, chromium, nickel, and tin)
Paint Preparation	Paint thinners, enamel reducers, white spirits containing alcohols, petroleum distillates, oxygenated solvents, mineral spirits, ketones	Spent solvents, solvent- & paint-soaked rags, paint wastes with heavy metals (cadmium, chromium, lead)
Autobody Painting & Refinishing	Enamels, lacquers, epoxies, alkyds, acrylics, primers containing aromatic hydrocarbons (toluene), chlorinated hydrocarbons (methylene chloride), petroleum distillates (VM&P naphtha), ketones (acetone, methyl isobutyl ketones), epoxy ester resins, metals (zinc, cadmium, chromium, lead)	Spent solvents, solvent- & paint-soaked rags, paint wastes with heavy metals
Spraying & Brush Cleaning	Paint thinners, enamel reducers, solvents, white spirits containing ketones (acetone), alcohols (methanol, isopropyl alcohol), petroleum distillates, mineral spirits, aromatic hydrocarbons (toluene)	Spent solvents, solvent- & paint-soaked rags, used paint booth filters, solvent-laden wastewaters from paint booth water curtains, paint wastes with heavy metals
Paint Removal	Solvents, paint thinners, enamel reducers, white spirits containing ketones (acetone), aromatic hydrocarbons (toluene), chlorinated hydrocarbons (methylene chloride), alcohols (methanol, isopropyl alcohol), mineral spirits, petroleum distillates, other oxygenated-hydrocarbons, blasting abrasives	Spent solvents, solvent- & paint-soaked rags, paint wastes with heavy metals, blasting abrasives & paint particulates containing heavy metals (cadmium, chromium, lead)
Rust Removal	Naval jelly, strong acids (phosphoric acid, hydrochloric acid, hydrofluoric acid), strong bases (sodium hydroxide), kerosene, mineral spirits	Waste acids, waste alkalis
Car Washing	Detergents, degreasers (1,1,1-trichloroethane, tetrachloroethylene), washwater & rinsewater	Spent washwater and rinsewater containing oil & gasoline residuals, detergents, degreasers, road salts and sediments
Battery Replacement	Lead, acids (sulfuric acid)	Lead dross, spent acids, scrap

# **AUTOMOTIVE SERVICE & REPAIR**

## **BEST MANAGEMENT PRACTICES**

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### **DESIGN BMPs**

#### **SEE GENERAL BEST MANAGEMENT PRACTICES**

#### **Floor Drains**

Floor drains in service bays and vehicle washing areas must either be connected either to a holding tank with a gravity discharge pipe, to a sump which pumps to a holding tank, or to an appropriately designed oil/grit separator which discharges to a municipal sanitary sewer.

Oil/water separators must receive only floor washdown or vehicle washing wastewaters. They must not be used to collect spills or concentrated wastes.

If vehicle washing is conducted regularly, floor drains in wash bays must be connected to a separate grit separator which then discharges to the municipal sanitary sewer. Wastewaters from vehicle washing represent significant flows which can hydraulically overload an oil separator, and may contain detergents which can emulsify oils in an oil separator and impair treatment of oily wastewaters from service bay floor drains.

Service bay floor drains that discharge to dry wells must be cleaned out and eliminated. Liquid and sediment samples should be taken, and contaminated dry wells must be removed and contents disposed in accordance with regulatory requirements.

If no floor drains are installed, there should be no vehicle washing, and there should be no discharges to the environment of any kind.

#### **Floors**

Vehicle wash bays must be completely bermed.

Seal service bay concrete floors with an impervious material to facilitate cleanup without using solvents.

Floors should not be cleaned by flushing with water; use a wet-vacuum or mop and dispose of cleaning wastes properly.

Some facilities may use service "pits" which allow a vehicle to be serviced without using a hydraulic lift. These pits often have earthen floors which are vulnerable to spills and contamination. Service pits must be checked for historical contamination, taking remedial action taken when necessary. Service pits should be completely surfaced with concrete and sealed with a suitable impermeable material. There must also be provisions for the collection of spills or accumulations of wastes, such as a sump which discharges to a holding tank. The construction of service pits must be avoided in any new facilities.

Areas where vehicles are stored or repaired must have an impermeable surface and have provisions for containment of vehicle leaks.

Hydraulic lifts should be checked for leaks and potential releases of fluid. Lift systems must be provided with a secondary containment system. Above-ground lift systems should be used wherever possible. A nonhazardous hydraulic fluid should be used.

#### **Stormwater Management**

Uncovered vehicle storage areas should have a separate stormwater collection system with an oil/grit separator which discharges to the municipal sanitary sewer or to a dead

# **AUTOMOTIVE SERVICE & REPAIR**

## **BEST MANAGEMENT PRACTICES**

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holding tank.

### **Work Areas**

Dedicating service bays for a specific operation, such as parts cleaning & degreasing, engine steam cleaning, radiator repair, fluid changes and replacement, vehicle washing, rustproofing & undercoating, and body stripping & painting, can minimize cross-contamination, facilitate segregation of waste streams, and allow for more efficient handling of materials and wastes.

Each service bay should be provided with a waste collection station. Each station could have labelled containers or for each type of waste fluid, or labelled waste sinks which discharge to an appropriate waste-holding tank.

### **PROCESS BMPs**

#### **General Maintenance & Repair**

In engine rebuilding, engine bakeout and ball peening may be a suitable substitute for engine boilout.

Use drip pans to minimize leaks and spills onto the floor.

High-performance, longer lasting oils can reduce the frequency of changes and the amount of waste produced.

Used engine oil should be recycled through a licensed recycling service.

Spent oil filters may be recycled for their scrap metal content. A drain rack over a waste oil sink might be used to drain and collect all residual oil prior to disposal.

Consider the use of propylene glycol-based antifreeze as an alternative to the more toxic ethylene glycol types.

Antifreeze can be recovered either on-site or off-site. Units are available which chemically restore ethylene glycol by removing impurities and neutralizing organic acids formed as breakdown products of the coolant. Other services are available which will regularly remove and process used antifreeze, selling the product back to the generator at reduced cost.

#### **Parts Cleaning & Degreasing**

Aqueous or alkaline cleaners may be substituted for solvent-based cleaners in some applications, particularly for non-aluminum parts.

High-pressure water washing may be an effective method of parts cleaning; wastewater can be treated with an oil/water separator and recycled.

Substitute nonchlorinated solvents for chlorinated compounds wherever possible.

Parts cleaning and degreasing area should be isolated from other operations, preferably located within a containment area with no direct access to outside the facility, and the

## **AUTOMOTIVE SERVICE & REPAIR**

### **BEST MANAGEMENT PRACTICES**

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floor must be sealed with a suitable impermeable material.

Precleaning parts with a squeegee, rag, or wire brush, followed by steam cleaning, high-pressure wash, or hot bath which recycles an aqueous solution using an oil separator, would be an efficient approach to minimizing or even eliminating the use of hazardous solvents and would prolong the life of any subsequent cleaning solution.

Where possible use only hot water for the precleaning and subsequent cleaning steps. With a recycling system, a detergent may be used and a rust inhibitor may be added if parts are sensitive to corrosion.

For non-aluminum parts an alkaline-based aqueous cleaner may be used.

If hot water, detergent, or alkaline baths are demonstrably inadequate, then a nonchlorinated organic solvent might be used, such as d-limeoline (a terpene), or a high flash (> 140 F) naphtha. Chlorinated solvents and other solvents which have a specific gravity greater than 1.0 (water) should be avoided.

Using one multi-purpose solvent rather than several would increase reuse and recycling potentials.

Parts cleaning and degreasing should be done in a self-contained, recirculating solvent sink.

Extend solvent life by using a two-stage rinsing process with "dirty" and "clean" solvent baths.

Reduce the frequency of solvent bath replacement to reduce solvent use and handling. Decanting solvent sludges from tanks can extend solvent bath life. Replace solvent only as needed or extend the replacement schedule.

The used solvent decanted from the separation of solvent sludges can be reused as a precleaning step for dirty parts or for less critical parts prior to a final cleaning.

Increase freeboard and place hoods or covers on all parts-cleaning tanks to minimize evaporation of solvent.

Solvent test kits may be used to check when solvent is too dirty for further use.

A drip rack placed over the cleaning tanks would allow for dragout to drain prior to any following cleaning step. Reduce dragout from parts cleaning by allowing longer drip time, or wipe parts with cloth or rags.

Spent aqueous and other nonhazardous solutions may become hazardous after use due to elevated concentration of heavy metals or toxic organic substances. They must be treated or disposed as a hazardous material.

A recommended procedure for parts cleaning is to employ a service which will maintain

## **AUTOMOTIVE SERVICE & REPAIR**

### **BEST MANAGEMENT PRACTICES**

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the parts-cleaning unit, and exchange spent solvents, recycle off-site, or dispose of them properly on a contractual basis. Some services recycle up to 70 - 80% of the solvent and sell it back to the generator at reduced cost. This would reduce handling of solvents, and would ensure proper operation and maintenance of parts-cleaning equipment.

On-site recycling systems may be used which employ distillation and/or filtration. These systems should be maintained by trained staff or a contracted service agent. A reduced emission/closed loop type, which captures evaporative losses, is preferred.

**Engine Steam Cleaning**    Eliminate the use of solvents for steam cleaning engines and parts.

Steam cleaning should not be conducted outside, where wastewaters may be discharged to the ground.

If no detergents or solvents are used, steam-cleaning wastewaters may discharge to the municipal sanitary sewer via an oil separator.

If detergents or solvents are employed, wastewaters must either be recycled and reused or discharged to a holding tank. If a grit separator has been installed for treating vehicle-washing wastewater prior to discharging to the municipal sanitary sewer, and if no solvents are used for steam cleaning, then these wastewaters may discharge to the grit separator.

**Autobody Refinishing  
& Painting**

Consider the use of water-based paints to reduce the amount of hazardous waste generated. These types of paints are being developed for most automotive applications, and should become more widely available in the near future.

Paints with low volatility, lower metal concentrations, and higher solid content should be used when possible.

Autobody painting should be done in a separate, secure area with no floor drains.

Water curtains in paint booths must recirculate the water used. There should be no discharges.

Reusable metal or styrofoam paint booth filters should be used.

Use more efficient painting processes such as electrostatic painting or powder coating, which reduce the amounts of paint overspray and paint waste generated. The efficiency of paint-spraying equipment varies from about 30-60% for air-atomized sprayers and 65-80% for electrostatic sprayers, to as much as 90-99% for powder-coating equipment.

Use more efficient paint transfer equipment, such as high-volume low-pressure or low-volume low-pressure spray guns.

Paint transfer equipment should be regularly calibrated to maintain proper application rates and reduce waste.



## **AUTOMOTIVE SERVICE & REPAIR**

### **BEST MANAGEMENT PRACTICES**

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Mix paint only as needed.

Heating paint mixtures may reduce the amount of thinner required.

Reduce paint cup size on spray guns to reduce amount of wasted paint.

Waste paint can be reused as a rough coat for other applications, such as undercoating.

Use recycling spray-gun washers to reuse solvent and reduce amount of waste generated. Recycling may consist of filtration and/or distillation.

Segregate waste paint and paint sludges from waste thinner.

Decant waste thinner for reuse as a precleaning solvent for spray guns and other equipment, then use a small amount fresh solvent for final cleaning. Paint thinners may be prolonged by using multiple cleaning steps, which may reduce spoilage of "clean" thinner baths. Waste thinners may also be recycled for use as a precleaning step for parts cleaning.

#### **Vehicle Washing**

Aromatic and chlorinated hydrocarbon solvents should be eliminated from vehicle-washing operations.

Vehicle-washing operations should recycle wastewaters by using rinsewaters as makeup for washwater and using appropriate treatment such as filtration and grit removal. Recycle systems are available which recycle up to 100% of the wastewater generated.

Washwaters may discharge to a dedicated grit separator which discharges to the municipal sanitary sewer.

Car-wash wastewaters are not recommended to combine with floor drain wastewaters. Detergents used in washing may emulsify oils captured in the separator, which may subsequently discharge to the sewer system.

#### **Radiator Repair**

Aromatic and chlorinated hydrocarbon solvents should not be used in radiator repair.

Eliminate the use of lead solder where possible, or use solder with the lowest lead content.

Radiator repair shops can use a three-step system: a boil-out tank (no discharge) for cleaning; a dragout tank (no discharge) from which rinsewater is decanted into the boil-out tank to make up for evaporative losses; and a recycling system for rinsing and pressure testing, from which water is treated to remove metals (copper, nickel, lead, zinc, tin, chromium) and then reused. With this procedure, most contamination remains in the boil-out or dragout tanks.

Boil tanks should be placed in a secure area with secondary containment. The solutions from these boil tanks should be used for as long as possible.

## **AUTOMOTIVE SERVICE & REPAIR**

### **BEST MANAGEMENT PRACTICES**

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Drainage from boil tanks should be collected in holding tanks or drums and may have to be disposed of as a hazardous waste.

Sludges from the treatment of the recycled rinsewaters must be collected and disposed as a hazardous waste.

Discharges from flushing rinsewater may be treated for metals removal and discharged to a municipal sanitary sewer system in accordance with federal, state, and local discharge regulations.

Spray painting of radiators should follow BMPs for autobody painting.

#### **Rustproofing**

Eliminate the use of solvents in rustproofing operations where possible.

Use high-pressure washing as an alternative to using solvents.

This operation may use equipment similar to that used in autobody painting. Follow BMPs for autobody refinishing and repainting.

Solvent drippage from cleaning automobile surfaces prior to rustproofing or undercoating must be collected in a holding tank and disposed of properly. There must be no discharges from these operations.

If a pressure washing is done without using solvents, the wastewater may discharge to a grit separator connected to a municipal sanitary sewer. All federal, state, and local discharge regulations must be met.

Do not undercoat vehicles with used solvent or solvent sludge. Solvents and solvent sludges can drip from the vehicle undercarriage enter the ground.

#### **PROCEDURAL BMPs SEE GENERAL BEST MANAGEMENT PRACTICES**

#### **Spill Control**

Acid spills must be neutralized and discharged to a holding tank.

Rain and snowmelt can be cleaned with a wet-dry vacuum, or mopped. Collected material may be discharged to a waste-holding tank, or an oil/water separator connected to a municipal sanitary sewer.

#### **Materials & Waste Management**

Segregate wastes that are generated, such as chlorinated from nonchlorinated solvents, oils from solvents, and antifreeze from both oils and solvents in order to minimize disposal costs and facilitate recycling and reuse.

Use high-performance, longer lasting oils.

Do not use waste oil as a dust suppressant.

## **AUTOMOTIVE SERVICE & REPAIR**

### **BEST MANAGEMENT PRACTICES**

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Do not use antifreeze as a de-icing agent.

Waste-oil tanks should be used to collect and store petroleum-based fluids drained from vehicles, including used oil, transmission fluid, and brake fluid; they should not be used for collecting cleaning solvents or antifreeze. Tanks should be pumped out by a waste hauler licensed in accordance with federal, state, and local regulations.

Spent oil filters should be recycled for their scrap metal content. A drain rack over a waste oil sink might be used to drain and collect all residual oil prior to disposal.

Antifreeze should be recycled on site or be taken to a recycler. Service contractors may be available to maintain equipment on site and to recycle antifreeze.

Some facilities accept household disposal of antifreeze and waste oil. These must be segregated from business-derived wastes. Household wastes are exempt from RCRA requirements. Segregation will also eliminate the possibility of cross-contamination from the introduction of contaminants in the household wastes.

Lead-acid batteries should be recycled. Store small quantities of lead-acid batteries in acid-resistant tubs. Inspect batteries for cracks or leaks, especially if exposed to freezing temperatures, and store in a container which will hold released material. Large quantities of batteries should be stored in an isolated area with no floor drains, or floor drains directed to sumps connected to a dedicated holding tank. Storage areas should be sealed with an acid-resistant material and have a containment berm. Batteries stored on pallets must not be stacked higher than 3 to 5 feet, and should be covered and stored within an enclosed area and protected from freezing temperatures.

Inspect damaged vehicles to be serviced for leaks; use drip pans, isolated from floor drains or other possible pathways to the environment.

Have oil/grit separators cleaned every 6 - 12 months by a waste hauler licensed in accordance with federal, state, and local regulations. Maintain proper water level in separator to prevent pass-through of oils and other floatables.

Send waste solvent to a waste exchange for further reuse and recycling.

Wring out solvent rags and soaked adsorbent pads and booms for reuse, being careful to minimize human contact.

Waste paints, thinners, paint sludges and solids should be collected and drummed and disposed of according to federal and state regulations.

Scrap metal parts, or other parts which were in contact with lubricant, must be stored in enclosed containers indoors or in areas secured from stormwater accumulation. Dumpsters containing scrap metal should have drain plug in place and be covered. Preferably, they should be located on a concrete pad with a separate collection catch basin, which is pumped out periodically.

## **AUTOMOTIVE SERVICE & REPAIR**

### **BEST MANAGEMENT PRACTICES**

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**Trial-test recycling equipment to ensure compatibility with materials used and usable recycled product.**

**Regular inspection and maintenance schedules should address oil and grit separators, catch basins, and vehicle storage areas.**

**Clean hands with waterless cleaners and dispose of waste properly with hazardous waste, then wash hands.**

**Store wastes indoors in covered areas to prevent moisture from seeping in.**

# BEST MANAGEMENT PRACTICES FOR FACILITIES USING CLASS V UIC WELLS

## SUMMARY OF WASTE CHARACTERIZATIONS AND PATHWAYS FOR GROUND-WATER CONTAMINATION

TYPE OF FACILITY	WASTE CHARACTERIZATION	PATHWAYS FOR GROUND-WATER CONTAMINATION
Appliance Service Shops	Household cleaners, abrasives, wastewaters from cleaning operations, degreasers, solvents, metal polishes, paints, paint solvents, paint removers, strong acid- or alkali-based rust removers	Discharges to dry wells; dumping spent materials outside; improperly stored waste oils; discarded oily metal parts in uncovered drums or dumpsters; floor drains; discharging spent materials into septic systems
Automotive Service & Repair	Oils, fuels, additives, antifreeze, degreasing solvents, steam-cleaning wastewaters, floor washdown wastewaters, radiator flushing wastewaters, paint solvents, used paints, paint removers, cleaners, kerosene, mineral spirits, detergents, metals, road salts	Floor drains to dry wells; discharges to septic systems; leaks and spills; illegal dumping; uncovered or improperly stored drums and dumpsters; servicing or repairs done in unprotected areas; washdown swept outside of facility; discharges to storm drains; poor general housekeeping and inventory control; no contract with waste oil and antifreeze hauler; improper storage and disposal of batteries and battery acids
Beauticians	Surfactants, dyes, nail care solvents, hair clippings	Poorly designed septic systems; dumping of undiluted chemicals down drains
Dry Cleaning	Solvents, spent filter cartridges, still residues or bottoms, cooked powder residues, machine lint and dust, spotting board residues, contaminated still cooling water, vapor condensate, solvent-laden water from water separator	Poor housekeeping; improper storage and handling of barrel and storage areas; outside areas contaminated from vapor condensate; dumping of water from separator; discharges of cooling waters to ground or septic systems; improper collection, storage and disposal of residues, bottoms, and lint; illegal connections to storm drains; improper vapor recovery or inefficient still equipment; corroded plumbing in cast concrete flooring and walls; leaks and spills; floor drains to dry wells
Funeral Homes	Bodily fluids, formaldehyde, alcohols, surfactants, organic dyes	Concentrated discharges to septic systems; improper septic system design
Furniture Stripping	Rinsewaters, spent stripping solutions and sludges, paints and other finishes, solvents used for thinning paints and cleaning painting equipment, paint solids, solvent-soaked rags and paint residues, caustic tank solutions	Improper storage and disposal of rinsewaters and stripping solutions; illegal discharges to septic systems; leaks and spills; pressure rinsing of dipped furniture outside or in uncontained areas; floor drains to dry wells
Machine & Welding Shops	Machine shops: metal grinding sludges, oil-laden metal shavings and chips, cooling and lubricating oils, cooling waters, acids & cyanides & other salts from heat treating, cleaning and degreasing solvents, still bottoms, solvent soaked rags, surfactants, caustic solutions  Welding: metal slag and tab ends, quenching or cooling waters, emulsified oils, solvents and solutions for cleaning and degreasing of parts, paints, thinners, primers, solvents	Machine shops: improper handling and disposal; leaks and spills; storage of oil-laden metal by-products in uncovered or unplugged leaking drums and dumpsters; cleaning of parts outside or in uncontained areas; discharges to septic systems; floor drains to dry wells  Welding: floor drains to dry wells; leaks and spills, performing degreasing and/or cleaning in sinks discharging to septic systems or outside in uncontained areas

## **Glossary of Terms**

**Cesspools.** A “drywell” that receives untreated sanitary waste containing human excreta, and which sometimes has an open bottom and/or perforated sides.

**Class V Injection Wells.** Injection wells that are not included in Classes I through IV, as defined in 40 CFR 144.4, are considered to be Class V wells. These Class V wells are typically shallow wells used to place a variety of non-hazardous fluids (as defined under the Resource Conservation and Recovery Act) directly below the land surface.

**Community Water Systems (CWS).** A public water system that serves at least 15 service connections used by year-round residents of the area served by the system or regularly serves at least 25 year-round residents.

**Direct Implementation (DI) States.** States that do not seek the responsibility for implementing a law or fail to demonstrate that they meet EPA’s minimum requirements, for which EPA is required by law to prescribe and directly implement a program for these States.

**Drywell.** A bored, drilled, or driven shaft or a dug hole whose depth is greater than its largest surface dimension, which is completed above the water table so that its bottom and sides are typically dry except when receiving fluids. It is not an improved sinkhole or subsurface fluid distribution system.

**Ground Water Protection Areas.** Geographic areas near and/or around community and non-transient non-community water systems that use ground water as a source of drinking water. These areas are delineated and assessed under Section 1453 (Source Water Assessment and Protection Programs) of the Safe Drinking Water Act and are also referred to as source water protection areas, source water assessment areas, and ground water areas by different States. (Note: Source water protection areas for transient non-community water systems delineated under Section 1453 of the Safe Drinking Water Act are not explicitly included in the Class V Rule as ground water protection areas.)

**Improved Sinkhole.** A naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purpose of directing and emplacing fluids into the subsurface.

**Large-Capacity Cesspools.** Dry wells that receive untreated sanitary waste containing human excreta, and which sometimes have an open bottom and/or perforated sides. Large-capacity cesspools serve multiple dwellings and community or regional establishments, and have the capacity to serve more than 20 persons a day.

**Maximum Contaminant Level (MCL).** In the Safe Drinking Water Act, an MCL is defined as "the maximum permissible level of a contaminant in water which is delivered to any user of a public water system."

**Motor Vehicle Waste Disposal Wells.** Dry wells or septic tank and leachfield combinations that receive or have received fluids from motor vehicular repair or maintenance activities, such as an auto body repair shop, automotive repair shop, new and used car dealership, specialty repair shop (e.g., transmission and muffler repair shop), or any facility that does any vehicular repair work.

**Non-Community Water System (NCWS).** A public water system that is not a community water system. There are two types of NCWSs: transient and non-transient.

**Non-Endangerment of Underground Sources of Drinking Water.** Prohibition of movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR 141 or adversely affect public health.

**Non-Transient Non-Community Water Systems (NTNCWS).** Water systems that are not community systems and regularly serve at least 25 of the same non-resident persons per day for more than 6 months per year. Non-transient non-community systems typically are schools, offices, churches, factories, etc.

**Other Sensitive Ground Water Areas.** Areas that are not designated as ground water protection areas as specified in the Class V Rule, but are critical areas in the protection of underground sources of drinking water from contamination. These areas may include highly productive aquifers that supply only transient non-community water systems or private wells, areas overlying sole-source aquifers, aquifer recharge areas, karst aquifers, or other hydrogeologically vulnerable areas.

**Point of Injection.** The point of injection for a Class V well is the last accessible sampling point before the release of waste fluids into the subsurface environment. For example, the point of injection of a septic system might be the distribution box – the last accessible sampling point before the waste fluids drain into the leachfield and the underlying soils. For a drywell, it is likely to be the well bore itself.

**Primacy States.** States that have the responsibility for ensuring a law is implemented, and have the authority to enforce the law and related regulations. States have adopted rules at least as stringent as Federal regulations and have been granted primary enforcement responsibility.

**Public Water System (PWS).** A water system that provides water to the public for human consumption through pipes or other conveyances, if such system has at least 15 connections or regularly serves at least 25 individuals.

**Sanitary waste.** Liquid or solid waste originating solely from humans and human activities, such as wastes collected from toilets, showers, wash basins, sinks used for cleaning domestic areas, sinks used for food preparation, clothes washing operations, and sinks or washing machines where food and beverage serving dishes, glasses, and utensils are cleaned. Sources of these waste may include single or multiple residences, hotels and motels, restaurants, bunkhouses, schools, ranger stations, crew quarters, guard stations, campgrounds, picnic grounds, day-use recreation areas, other commercial facilities, and industrial facilities provided the waste is not mixed with industrial waste.

**Septic System.** A “well” that is used to emplace sanitary waste below the surface and is typically comprised of a septic tank and subsurface fluid distribution system or disposal system.

**Sole Source Aquifer.** An aquifer that has been designated by EPA, under Section 1424(e) of the Safe Drinking Water Act, because the aquifer is a “sole or principal drinking water source” for an area where contamination of the aquifer could create a significant hazard to public health.

**Source Water Protection Area (SWPA).** The area delineated by the state for a public water system (PWS) or including numerous PWSs, whether the source is ground water or surface water or both, as part of the state SWAP approved by EPA under section 1453 of the Safe Drinking Water Act.

**Subsurface fluid distribution system.** An assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground.

**Susceptibility Analysis.** An analysis used to determine, with a clear understanding of where the significant potential sources of contamination are located, the susceptibility of the PWS(s) in the source water protection area to contamination from these sources.

**Transient Non-Community Water Systems (TNCWS).** Water systems that are not community systems and serve 25 non-resident persons per day for 6 months or less per year. Transient non-community systems typically are restaurants, hotels, large stores, etc.

**Underground Source of Drinking Water (USDW).** An aquifer or a portion of an aquifer that (1) supplies a public water system, or (2) contains a sufficient quantity of ground water to supply a public water system and currently supplies drinking water for human consumption or contains fewer than 10,000 mg/l total dissolved solids, and is not an exempted aquifer.

**Well.** In the context of the Underground Injection Control program, means a bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system.



**Well Injection.** The subsurface emplacement of fluids through a well as defined in the context of the Underground Injection Control program.

**Wellhead Protection Area (WHPA).** The surface and subsurface area surrounding a well or well field, supplying a PWS, through which contaminants are reasonably likely to move toward and reach such water well or well field.